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Volume I

EXPLANATORY NOTES

for

DEPARTMENT OF AGRICULTURE

Fiscal Year

1959

C O N T E N T S

	PAGES
Table of Contents	I
Agricultural Research Service	1
Extension Service	140
Farmer Cooperative Service	167
Soil Conservation Service	175
Watershed Protection	202
Flood Prevention	230
Water Conservation and Utilization Projects	248
Great Plains Conservation Program	253
Agricultural Conservation Program Service	264

PREFACE

The obligations shown in the Project Statements are on the basis of the appropriations and activities proposed in the 1959 Budget Estimates, and in some instances the activities reflected in the Project Statement are further divided into subcategories, reflecting a more detailed description of the work conducted under the appropriation items.

It should be noted that the obligations reflected as subcategories in the Project Statements are generally not obtained directly from accounting records that are formalized by specific account classifications. Therefore, such amounts represent in most instances the best approximation of the amounts indicated. Wherever it has been necessary, because of the nature of the activity, to distribute certain costs which are not directly available from the accounts, every effort has been made to allocate such charges as accurately as possible based on past experience, periodic time reports, or other factors.

C O N T E N T S

(Volume I)

194505

Pages

AGRICULTURAL RESEARCH SERVICE:

Purpose Statement	1
Salaries and Expenses	6
State Experiment Stations	117
Diseases of Animals and Poultry	127
Animal Disease Laboratory Facilities	132
Research Facilities	133
Working Capital Fund, Agricultural Research Center	134
Statement of Obligations Under Allotments and Other Funds	135
Passenger Motor Vehicles and Aircraft	137

EXTENSION SERVICE:

Purpose Statement	140
Cooperative Extension Work, Payments and Expenses	142
Statement of Obligations Under Allotments and Other Funds	166

FARMER COOPERATIVE SERVICE:

Purpose Statement	167
Salaries and Expenses	168
Statement of Obligations Under Allotments and Other Funds	174

SOIL CONSERVATION SERVICE:

Purpose Statement	175
Conservation Operations	180
Watershed Protection	202
Flood Prevention	230
Water Conservation and Utilization Projects	248
Great Plains Conservation Program	253
Statement of Obligations Under Allotments and Other Funds	259
Passenger Motor Vehicles	261

AGRICULTURAL CONSERVATION PROGRAM SERVICE:

Agricultural Conservation Program:	
Purpose Statement	264
Emergency Conservation Measures:	
Purpose Statement	274
Statement of Obligations Under Allotments and Other Funds	278

AGRICULTURAL RESEARCH SERVICE

Purpose Statement

The Agricultural Research Service was established by the Secretary of Agriculture on November 2, 1953, under the authority of Sec. 161, Revised Statutes (5 U.S.C. 22), Reorganization Plan No. 2 of 1953 and other authorities. It conducts production and utilization research and the closely associated inspection, disease and pest control and eradication work. The Administrator of this Service is also responsible for the coordination of all research of the Department.

The program of the Agricultural Research Service is organized under three areas of activity as follows:

1. Research is conducted under three major categories:
(a) Farm research (research on crops and livestock, and farm and land management research); (b) Utilization research and development research; and (c) Home economics research.
2. Regulatory activities are conducted under three major categories:
(a) Plant disease and pest control; (b) Animal disease and pest control; and (c) Meat inspection.
3. The Service administers the Federal-grant funds for research at the State Agricultural Experiment Stations and operates experiment stations in Puerto Rico, Virgin Islands, and Alaska.

The Agricultural Research Service also carries out emergency programs, when necessary, for the control and eradication of animal diseases, such as foot-and-mouth disease and vesicular exanthema of swine, and for the control of emergency outbreaks of insects and diseases.

The Agricultural Research Service maintains a central office in Washington, D. C., and operates the 12,000-acre Agricultural Research Center at Beltsville, Maryland. However, most of the work is conducted at approximately 475 other locations in the United States, Territories and Possessions and several locations in foreign countries. Much of the work is conducted in cooperation with the State Agricultural Experiment Stations and with other agencies, both public and private. On November 30, 1957, there were 15,159 full-time employees, of which 3,162 were in the Washington Metropolitan area and 11,997 were located at other points in the United States, Territories and Possessions, and foreign countries.

	Appropriated, 1958	Budget Estimate, 1959
Appropriations:		
Salaries and expenses:		
Research	\$ 57,794,890	\$ 60,744,890
Plant and animal disease and pest control	30,082,000	42,132,000
Meat inspection	16,326,000	17,326,000
Total	<u>104,702,890</u>	<u>120,202,890</u>
State experiment stations:		
Payments to States, Hawaii, Alaska and Puerto Rico	30,353,708	30,353,708
Penalty Mail	250,000	250,000
Total	<u>30,603,708</u>	<u>30,603,708</u>
Total	<u>a/135,306,598</u>	<u>150,806,598</u>

a/ In addition, a 1958 supplemental appropriation is anticipated to reimburse the Commodity Credit Corporation for funds advanced and expenses incurred in fiscal year 1956 with interest thereon through March 31, 1958, for (1) eradication of vesicular exanthema of swine (\$1,393,490) and (2) for the intensified brucellosis eradication program (\$17,548,923). These items are included in these justifications under "Special activities".

Summary of Appropriations, 1958, and Estimates, 1959

Appropriation Item	Total Appropriated, 1958	Budget Estimates, 1959	Increase or Decrease
Salaries and expenses:			
Research	\$57,794,890	\$60,744,890	+\$2,950,000
Plant and animal disease and pest control	a/ 30,082,000	42,132,000	+12,050,000
Meat inspection	a/ 16,826,000	17,326,000	+500,000
Total, Salaries and expenses	104,702,890	120,202,890	+15,500,000
State Experiment Stations:			
Payments to States, Hawaii, Alaska, and Puerto Rico	30,353,708	30,353,708	- -
Penalty mail	250,000	250,000	- -
Total, State Experiment Stations .	30,603,708	30,603,708	- -
Diseases of animals and poultry	b/ - -	b/ - -	- -
Total, Appropriations	c/135,306,598	150,806,598	+15,500,000

- a/ Does not reflect the transfer of \$115,000 from "Plant and animal disease and pest control" to "meat inspection" in 1958 pursuant to 5 U.S.C. 572.
- b/ Authority to make transfers of \$1,270,000 from other funds available to the Department to finance the eradication of vesicular exanthema in swine was provided in 1958, and not to exceed \$1,000,000 is proposed in 1959.
- c/ In addition, an appropriation was made in 1958 to repay the Commodity Credit Corporation for funds advanced in fiscal year 1956, and interest thereon, for eradication of vesicular exanthema (\$1,853,450) and brucellosis (\$16,728,210). A supplemental appropriation in 1958 is anticipated to repay the Corporation for funds advanced in fiscal year 1957, and interest thereon, for eradication of vesicular exanthema (\$1,393,490) and brucellosis (\$17,548,923).



Revision of Activity Titles and Structure in the
1959 Budget Estimates

The 1959 Budget Estimates propose a revision of the activities and projects under the appropriation item, "Salaries and expenses, Research, Agricultural Research Service," as follows:

<u>Proposed - 1959 Budget</u>	<u>Obligations, F.Y. 1958 (estimated)</u>	<u>1958 Budget</u>	<u>Obligations, F.Y. 1958 (estimated)</u>
<u>a. Farm research:</u>		<u>a. Livestock research:</u>	
Animal husbandry	\$4,984,700	{ Animal and poultry husbandry	\$3,246,840
		{ Dairy husbandry	1,737,860
Animal disease and parasite	6,625,000	Animal disease and parasite	6,625,000
		Total, Livestock research	11,609,700
Crops	12,487,200	<u>b. Crops research:</u>	
Entomology	5,099,900	{ Field crops	7,705,730
		{ Horticultural crops .	4,781,470
		Entomology	5,099,900
		Total, Crops research	17,587,100
Soil and water conservation	7,860,490	<u>c. Farm and land manage- ment research:</u>	
Farm economics	2,709,000	Soil and water con- servation	7,860,490
Agricultural engineering	2,101,000	Production economics	2,709,000
		Agricultural engineering	2,101,000
Total, Farm research .	41,867,290	Total, Farm and land management	12,670,490
		[Total, above projects]	[41,867,290]
<u>b. Utilization research and development * ...</u>		<u>d. Utilization research *</u>	
	12,915,800		12,915,800
<u>c. Home economics research *</u>		<u>e. Home economics research *</u>	
	1,987,800		1,987,800
<u>d. Administration of pay- ments to States, and Territorial research *</u>		<u>f. Administration of pay- ments to States, and Territorial research *</u>	
	924,000		924,000
Total, Research	57,694,890	Total, Research	57,694,890

* No revisions proposed in subsidiary projects.

The proposed revision combines the three activities, "Livestock research," "Crops research," and "Farm and land management research" into a single activity, "Farm research." This corresponds to the single activity for "Utilization research and development" and for "Home economics research." It is consistent with the realignment of research activities approved on February 15, 1957, whereby the three production research activities were placed under the direction of a Deputy Administrator and the directors of each of the seven divisions (coordinate with the sub-projects proposed above) now report directly to the Deputy Administrator.

The revision also combines closely related projects. The former projects, "Animal and poultry husbandry" and "Dairy husbandry" have been combined into a single project, "Animal husbandry." Also the former projects, "Field crops" and "Horticultural crops" have been combined into the single project "Crops." The title of the project "Production economics" has been changed since the broader title, "Farm economics" is more descriptive of the work. It is proposed to expand the title of the activity, "Utilization research" to "Utilization research and development." This recognized the increasing attention to pilot plant testing of procedures for the production and processing of new products and to working with industry on the development of new uses for agricultural products.

Presentation of the program of work and its accomplishments will continue to be provided in the Budget in substantially the same detail as before.

(a) Salaries and Expenses

	<u>Research</u>	<u>Plant and Animal Disease and Pest Control</u>	<u>Meat Inspection</u>	<u>Total</u>
Appropriation Act, 1958	\$57,794,890	\$26,082,000	\$16,826,000	\$100,702,890
Less savings in 1958 reflected as reduc- tions in 1959 estimates	-100,000	- -	- -	-100,000
Supplemental Appropri- ation Act, 1958	- -	4,000,000	- -	4,000,000
Base for 1959	57,694,890	30,082,000	16,826,000	104,602,890
Budget Estimate, 1959	60,744,890	42,132,000	17,326,000	120,202,890
Increase	<u>+3,050,000</u>	<u>+12,050,000</u>	<u>+500,000</u>	<u>+15,600,000</u>

SUMMARY OF INCREASES AND DECREASES, 1959

Research:

Net increase of \$3,050,000 consisting of:

Decrease due to elimination of non-recurring appropria-
tion provided in 1958 for construction and alterations
of laboratories (\$1,445,000 for soil and water conserv-
ation research laboratories and \$105,000 for a wool
processing laboratory at Albany, California) -1,550,000

Increase totaling \$4,600,000 for utilization research
as follows:

Research on conversion of wheat, other small grains,
and corn or their constituents, to forms that will
encourage increased industrial use (in addition,
it is proposed to redirect work in the present farm
research program to the extent of \$805,000 in order
to place greater emphasis on this research on grains) ... +1,100,000

Research on cotton and other fibers to develop new and
improved cotton fibers, fabrics, processes, and
processing machinery to maintain and create new
markets (\$800,000) and to expand research on wool
(\$200,000) +1,000,000

Research on fruits and vegetables in order to provide
new and improved products for domestic and foreign
markets +250,000

Expansion of research on oilseeds (soybeans, safflower,
flaxseed, cottonseed, castor beans, and peanuts) to
develop new industrial outlets such as plastics,
plasticizers, lubricants, adhesives, etc. +1,100,000

Research on new plants and plant seeds to discover new oilseed and fiber crops to meet industrial needs (\$150,000); and on sugar to develop derivatives having new and industrial uses (\$100,000)	+250,000
Expansion of research on production of dry whole milk (\$500,000), and on frozen meats (\$100,000) to extend and stabilize markets; to develop new and improved industrial outlets for animal fats (\$250,000); and to improve processing and properties of leather to broaden markets and reduce costs (\$50,000)	+900,000
Net increase for research	+3,050,000
<u>Plant and Animal Disease and Pest Control:</u>	
To evaluate registered labeling on <u>pest and disease control</u> products to determine compliance with Public Law 518	+39,300
To provide for assumption of full responsibility for foreign <u>plant quarantine</u> work in Florida and meeting the additional workload of Customs Service for inspection of passengers' baggage for detection of prohibited or restricted agricultural materials	+250,000
A net increase for <u>animal disease control and eradication</u> consisting of an increase of \$900,000 to meet the requirements of the screwworm eradication program, and an increase of \$10,860,700 in the program for eradication of brucellosis (partially offsetting elimination of \$17,400,000 transfer from Commodity Credit Corporation)	+11,760,700
Net increase for plant and animal disease and pest control	+12,050,000
<u>Meat Inspection:</u>	
To provide inspectors needed in Federally inspected meat packing plants	+500,000
Total net increase, Salaries and Expenses	+15,600,000

PROJECT STATEMENT

Project	1957	1958 (estimated)	Increase or Decrease	1959 (estimated)
1. <u>Research:</u>				
a. <u>Farm research:</u>				
(1) Animal husbandry	\$4,927,615:	\$4,984,700:	-\$183,300	\$4,801,400
(2) Animal disease and parasite	5,920,924:	6,625,000:	-23,700	6,601,300
(3) Crops	a/ 12,397,468:	12,487,200:	-406,000	12,081,200
(4) Entomology	4,909,801:	5,099,900:	- -	5,099,900
(5) Soil and water conservation	5,376,295:	7,860,490:	-1,587,000	6,273,490
(6) Farm economics .	2,405,812:	2,709,000:	- -	2,709,000
(7) Agricultural engineering	2,028,863:	2,101,000:	-50,000	2,051,000
Total, farm research	37,966,778:	41,867,290:	-2,250,000	39,617,290
b. <u>Utilization re- search and development:</u>				
(1) Cereal and forage: crops	2,018,864:	2,455,600:	+1,905,000	4,360,600
(2) Cotton and other fibers	2,015,448:	2,709,400:	+895,000	3,604,400
(3) Fruits and vegetables	2,605,826:	2,186,800:	+250,000	2,436,800
(4) Oilseeds	1,177,390:	1,427,300:	+1,100,000	2,527,300
(5) New and special plants	1,464,026:	1,548,300:	+250,000	1,798,300
(6) Poultry, dairy and animal products	2,464,121:	2,588,400:	+900,000	3,488,400
Total, utilization research and development	11,745,675:	12,915,800:	+5,300,000	18,215,800
c. <u>Home economics research:</u>				
(1) Human nutrition	891,042:	1,002,000:	- -	1,002,000
(2) Household economics	559,192:	593,400:	- -	593,400
(3) Clothing and housing	358,168:	392,400:	- -	392,400
Total, home eco- nomics research	1,808,402:	1,987,800:	- -	1,987,800
d. <u>Administration of payments to States, and Territorial research:</u>				
(1) State experiment stations	180,503:	272,100:	- -	272,100
(2) Territorial ex- periment stations	601,662:	651,900:	- -	651,900
Total, administra- tion of payments to States, and Ter- ritorial research	782,165:	924,000:	- -	924,000
Total, Research ..	52,303,020:	57,694,890:	+3,050,000(1):	60,744,890

Project	1957	1958 (estimated)	Increase or Decrease	1959 (estimated)
2. <u>Plant and Animal Disease and Pest Control:</u>				
a. <u>Plant disease and pest control:</u>				
(1) Plant pest control:b/	15,070,324:	13,981,600:	+39,300(2):	14,020,900
(2) Plant quarantine :	4,003,495:	4,715,000:	+250,000(3):	4,965,000
Total, plant disease and pest control :	19,073,819:	18,696,600:	+289,300	18,985,900
b. <u>Animal disease and pest control:</u>				
(1) Animal disease control and eradication:				
Appropriated funds:	7,928,829:	9,894,000:	+11,760,700(4):	21,654,700
Transfer from CCC for brucellosis eradication	17,037,182:	17,400,000:	-17,400,000	- -
Total, animal disease control and eradication	24,966,011:	27,294,000:	-5,639,300	21,654,700
(2) Animal quarantine:	1,373,914:	1,491,400:	- -	1,491,400
Total, animal disease and pest control	26,339,925:	28,785,400:	-5,639,300	23,146,100
Deduct transfer from CCC for brucellosis eradication	-17,037,182:	-17,400,000:	17,400,000	- -
Total, Plant and Animal Disease and Pest Control	28,376,562:	30,082,000:	+12,050,000	42,132,000
3. <u>Meat Inspection</u> ... :	15,665,890:c/	16,826,000:	+500,000(5):	17,326,000
Total, obligations or estimate	96,345,472:	104,602,890:	+15,600,000	120,202,890
Unobligated balance ..	1,766,889:			
Transferred from "Diseases of animals and poultry, Agricultural Research Service, research" ..	-371,000:			
Transfers in the 1958 estimates from:				
"Diseases of animals and poultry, Agricultural Research Service, research" ..	-3,009,623:			
"Research on strategic and critical agricultural materials" :	-309,211:			
Unobligated balance brought forward	-6,527:			
Total appropriation :	<u>94,416,000:</u>			

- a/ Includes \$6,527 of fiscal year 1956 funds obligated by Bureau of Public roads in fiscal year 1957 for supervision of road construction contract let in fiscal year 1956 (11 Comp. Gen. No. A-43067).
- b/ Includes \$987,445 obligated for control of Medfly in fiscal year 1956 from 1957 appropriation which provided that \$1,250,000 be immediately available for expenditure in fiscal year 1956 for such purpose.
- c/ Does not reflect transfer of \$115,000 from Plant and Animal Disease and Pest Control to Meat Inspection under authority of 5 U.S.C. 572.

INCREASES AND DECREASES

(1) A net increase of \$3,050,000 consisting of:

(a) A decrease of \$1,550,000 due to elimination of non-recurring appropriation provided in 1958 for construction and alteration of laboratories, as follows:

A. \$1,445,000 under "Soil and Water Conservation Research" consisting of elimination of non-recurring construction and alteration costs of laboratories at Riverside, California (\$120,000); Watkinsville, Georgia (\$275,000); Morris, Minnesota (\$350,000); Oxford, Mississippi (\$350,000); and Tempe, Arizona (\$350,000). An increase of \$1,745,000 was provided in the 1958 appropriation for construction and alterations at these locations but \$300,000 of the amount will be required in fiscal year 1959 for laboratory and field equipment for the soil and water conservation facilities at Oxford, Mississippi; Morris, Minnesota; and Tempe, Arizona, and for purchase of additional land for experimental purposes at Morris, Minnesota.

B. \$105,000 under "Utilization research" for elimination of non-recurring construction costs of a building at the Western Utilization Research and Development Laboratory, Albany, California, for processing research on wool.

(b) An increase of \$4,600,000 for utilization research, as follows:

A. Increase of \$1,100,000 for "Cereal and Forage Crops" (the total increase is \$1,905,000 including \$805,000 by redirection from farm research as discussed below) to expand research on conversion of wheat, other small grains and corn, or their constituents, to forms that will encourage increased industrial use.

Need for Increase: There is a critical need to find new markets for wheat, other small grains, and corn. Over 60 percent of the value of commodities now held by the Commodity Credit Corporation is represented by corn, wheat, and other cereal grains. The most promising approach to increased use of these crops is through the development of products for large-scale industrial use. Recent research findings in the Department indicate several new leads which have promise. Essential to the realization of significant industrial outlets is a strong program of research and development including necessary supporting fundamental studies.

The present largest single use of corn starch (40 percent of 2.2 billion pounds in 1955) is for sizing, coating, and adhesive material for paper and paper products. Increased amounts of cereal products could be used in this area if starch could be modified to meet additional requirements not met by present products. Well over 30 million tons of pulp and paper are used annually in the United States, and production is expected to reach 56 million tons in 1975. If an additional 2 to 5 percent of cereal starch were to be used in manufacturing current paper products, from 40 to 100 million bushels of grain would be required for starch. A promising prospect for increased use of starch in paper is through incorporation of amylose, a component of starch, or of starch high in amylose, as an integral part of paper. Research has shown amylose to have superior film and fiber forming characteristics. Current research in corn breeding is developing varieties with high amylose content. Further research is needed on methods for incorporating high amylose starch in paper products.

The annual United States production of all types of industrial polymers (including plastics, films, fibers, elastomers, resins, and gums) is 8.1 billion pounds. Recent research findings indicate opportunities in this field for cereal grains are very attractive. Since each 1 percent of the total production of industrial polymers is equivalent to the starch from about 3 million bushels of cereal grains, the development of even a few products in this field could utilize significant amounts of grain. Investigations would be initiated and expanded to develop industrial polymers and chemical intermediates from such cereal products as starch, high amylose starch, and chemically modified wheat flour. For example, laboratory trials have already shown that strong, tough, plastic products can be made from dialdehyde starch, a new starch-derived raw material which has resulted from chemical research in the Department. Numerous problems of chemical modification and formulation must be solved through research and product development to attain commercial acceptability in a variety of applications.

Advances in utilization research in all fields depend to an ever increasing degree on a background of fundamental research. Many examples could be cited of major industrial developments such as synthetic fibers, detergents, and protective coatings, which became possible only after fundamental research had provided new concepts and principles of chemical and microbiological reactions, methods of measurement, and understanding of interrelationships between chemical structure and properties. In the field of cereal grains, fundamental research has not been carried out on a scale commensurate with the value or importance of the contributions such research can provide.

For example, a truly comprehensive study of wheat proteins is needed. Gluten, which comprises about 85 percent of the total wheat protein, is a mixture of several substances that impart the unique qualities of elasticity and cohesiveness to wheat flour doughs. This property makes it suitable for a number of rather large-scale uses that might be developed through research. Gluten has never been separated into

all of its component parts and each part studied in detail because adequate methods have not been available. Recently, however, new methods, reagents and equipment have been developed which enable wheat proteins to be separated with greater ease for subsequent chemical treatment. Modified wheat proteins show promise of new chemical entities useful as gels, sizing agents, adhesives, plastics, etc.

Similarly, fundamental studies are also needed on the interactions of proteins, fats, and starches which occur during the unit processes of the baking industry so as to expand the current high-value usage of wheat.

Plan of Work: Research and development would be conducted on the increased use of starch, and wheat flour products in (1) paper and paper products, including fibrous structured elements, bonding agents within the paper, adhesives for coatings, and aids in paper formation; (2) in the production of industrial polymers, such as plastics, films, and resins, and chemical intermediates such as polyalcohols, organic acids, and aldehydes; and (3) in the fermentation conversion of cereal grains to industrial products such as elastomers and gums.

Fundamental research would be undertaken on cereal grains and their important constituents to discover new chemicals and microbiological reactions and conversions, and to determine the chemical and physical properties of constituents and derivatives. Attention would also be given to fundamental research designed to improve and extend the food uses of wheat. The information gained would be applicable to the development of industrial outlets.

Special emphasis would be placed on research on gluten. Promising leads would be selected for intensive investigation and development on a scale large enough to permit critical evaluation for industrial use. When indicated, pilot plant studies would be undertaken in sufficient detail to determine economic feasibility for industrial production.

B. An increase of \$1,000,000 under "Cotton and Other Fibers" composed of:

a. Increase of \$800,000 to expand research on the development of new and improved cotton fibers, fabrics, processes, and processing machinery to maintain and create new markets.

Need for Increase: Cotton, grown on 840,000 farms extending across the entire southern half of the United States, is the Nation's largest cash crop. In addition to farmers who produce cotton, millions of others in the United States depend wholly or in part on the ginning, manufacturing, and merchandising of cotton and cotton products for a livelihood.

For many years the economic position of cotton has gradually deteriorated due to declining domestic per capita consumption, declining exports, and losses of large industrial markets. This decrease in the markets for American cotton has occurred while both the domestic and foreign consumption of all textile fibers has been steadily increasing. An increasingly large portion of the domestic textile market is being supplied by competing fibers, some of which are much higher in price than cotton.

Consumers of today are demanding higher quality textile products and products with specialized properties for specific uses. Synthetic fiber manufacturers and manufacturers of other products are concentrating research and promotional efforts on a large number of uses in competition with cotton.

Utilization research is the primary means of developing cotton products with properties such as wrinkle, rot, and flame resistance, that will cause them to be purchased in preference to competitive products. Funds now being spent on cotton utilization research are negligible in comparison to the amounts being spent by industry for research on the fibers and products that are steadily displacing cotton from its present markets.

Plan of Work: The following research would be expanded:

1. Basic research on the physical and chemical properties and structure of cotton fiber to provide information needed in applied research;
2. Exploratory and applied research to develop chemical treatments that will give to cotton new and enhanced properties;
3. Research to develop cotton products with special combinations of properties required for specific uses and classes of uses;
4. Applied research to develop more efficient and effective processing machinery and higher quality cotton products;
5. Research to develop new instruments and techniques for measuring the properties of cotton fibers to provide a means for more effectively and efficiently utilizing cotton and to provide better guides for both basic and applied utilization research.

Some of the specific objectives of such research would be: (1) determination of the basic mechanism by which wrinkle resistance is imparted to cotton by chemical treatments to serve as a guide for applied research to develop improved wash-and-wear cotton garments; (2) development of chemical treatments to make cotton products highly soil resistant; (3) development on a commercial scale of experimentally produced cotton products of the wash-and-wear type that are both flame and wrinkle resistant; (4) development of urgently needed machinery to obtain better mechanical cleaning of cotton without damage to the fibers and without excessive loss of spinnable

fibers; and (5) development of a high speed, automatic instrument for measuring the length and length distribution of cotton fibers at a low cost per sample.

b. Increase of \$200,000 to expand research on wool.

Need for Increase: The domestic sheep industry, representing over a quarter of a million farms and ranches distributed over the entire United States is vital to the national security and economy. Wool fiber is unmatched in many textile qualities and is urgently needed for many purposes, especially military clothing. Two-thirds of the nation's wool requirements are now dependent on production centers 6,000 to 12,000 miles away. Therefore, it is of utmost importance that domestic production be in an economically sound position and able to expand to meet requirements in case of a national emergency.

During the past two decades, our sheep industry has declined greatly. Since World War II the average production of shorn and pulled wools has fallen to 250 million pounds, from the 1931-40 average of 429 million pounds. A primary cause of this decline is the uncertain outlook for wool caused by producers of synthetics who, through active research, are providing textile mills with detailed information on the properties of their fibers and how to process them on wool machinery. The result is that wool is being displaced from many of its traditional markets. Research is needed to provide growers with specific information to use as a guide in producing better wools for manufacture, to provide information which will improve the efficiency of textile operations and to produce more desirable products.

Plan of Work: Representative domestic wools of known genetic, environmental, and dietary history would be investigated and compared to determine precisely how wool fiber properties influence processing efficiency. This work would include (1) study of such wool fiber properties as length, crimp, fineness, and stiffness, and (2) studies of processing variables, such as the optimum degree of twist to be applied to yarns made from selected wools, in order to give fabrics new textures and greater serviceability produced in the most efficient manner possible. Through close cooperation with growers, processors, State experiment station and other research workers, the information developed would be made available in such manner and detail that it would be immediately useful to the grower and the manufacturer.

c. Increase of \$250,000 under the activity "Fruits and Vegetables" to expand research on new and improved products for domestic and foreign markets.

Need for Increase: Surpluses of fruits and vegetables have had adverse effects on our agricultural economy for a number of the postwar years. These have greatly reduced the prices received by farmers for dried fruits and dried beans, and have resulted in the necessity for use of price supports, either direct or indirect, by the Department. In addition, seasonal and regional surpluses of fruits and vegetables which cannot be disposed of at reasonable prices frequently occur in

most major producing areas. Surpluses of these perishable commodities such as potatoes, peaches, tomatoes, and citrus fruits, though of short duration, nevertheless occasion disastrous losses to the grower through depressed prices for produce marketed and loss of produce left unharvested.

An increasing portion of our fruits and vegetables is being marketed in processed form. Retail value of processed fruits and vegetables reached an all time high of about \$5 billion in 1957. This provided the farmer with expanded domestic and export markets for his products, stabilized prices to the grower, and provided methods of marketing surplus fruits and vegetables by converting them into stable form. Continued growth of this processing industry is vital to a large segment of our agricultural economy.

Problems limiting the greater development of markets for processed fruits and vegetables are in large measure associated with deficiencies in fundamental information on the chemical and physical composition and structure of the fruits and vegetables and biochemical processes and reactions in the raw and processed products. Expansion of investigations to provide information about the composition of fruits and vegetables is greatly needed for the development of new and improved products for domestic and foreign markets, and for pharmaceutical, medicinal and other uses.

Plan of Work: An intensive research program designed to find additional outlets for surplus fruit and vegetable commodities would be initiated. Separation and identification of the chemical constituents of dried fruits, dried beans, and other fruits and vegetables in surplus supply would be undertaken. The chemical changes which occur in these commodities during and subsequent to processing would be studied as well as the factors that hasten or retard these changes. The pigments of fruits and vegetables and the degradative reactions that they undergo would be thoroughly investigated. Work underway on the chemistry of deteriorative changes in frozen fruits and vegetables would be accelerated and extended and a parallel program carried out on dried fruits and vegetables. Constituents which appear promising for industrial or pharmaceutical use would be isolated in sufficient quantities for evaluation.

D. Increase of \$1,100,000 under the activity "Oilseeds" to expand Research on soybeans, safflower, flaxseed, cottonseed, castor beans, and peanuts.

Need for Increase: The best potential outlet for significant amounts of present oilseed supplies lies in their industrial use. They are receiving increasing competition in this area from synthetic products derived from non-agricultural sources, but there are good prospects that the quantity of oils demanded by industry from oilseed crops can be greatly expanded through research. Development of new industrial uses and improvement of oils for present uses is urgently needed to increase the markets for such oilseed crops as soybeans, safflower, flaxseed, cottonseed, castor beans, and peanuts.

Two products resulting from research on flaxseed and soybeans show promise for industrial use: (1) vinyl ethers of linseed and soybean alcohols for use in protective coatings, and other industrial outlets; and (2) derivatives of soybean and linseed fatty acids for use in plastics and resins. Research on these products needs to be expanded to cover process development.

Safflower is a promising new oilseed crop which could be grown widely on acreages currently producing surplus grains and cotton. Because of the unique chemical composition of safflower oil, it has particularly desirable non-yellowing properties when used in enamels and paints. For the same reason research and development on chemical modification of the oil may be expected to open large new markets in the fields of plastics, plasticizers, foam polymers, surface active agents, surface coatings, and other industrial products.

To obtain additional markets for cottonseed, research should be undertaken to exploit the oil for industrial uses and make the meal available for the poultry feed market.

Castor beans, which can be grown in many parts of the United States, are a promising replacement crop for wheat and cotton. Castor oil has unique properties which adapt it for conversion to industrial products. Research is needed to develop derivatives which are suitable for use in protective coatings, plastics, lubricants, synthetic rubbers, foams, and others.

Studies of quality improvement are needed to increase markets for peanut products.

The growing synthetic organic chemicals industry now amounting to over 7 billion pounds represents a large potential market for oilseed crops. Fundamental research needs to be expanded on vegetable oils to obtain information on their chemical and physical properties and on their components and derivatives. It is needed to permit realization to the fullest extent of the inherent possibility of these oils as raw materials for conversion into products of highest economic value.

Plan of Work: Research would be conducted to find new derivatives and products from oilseed crops valuable in industry and to develop processes to improve the quality and reduce the cost of producing such products. Research on linseed and soybean oils would include:

- (1) Research on polymers and copolymers of vinyl ethers of linseed and soybean alcohols including evaluation of these products as components of industrial protective coatings;

- (2) Research on certain chemical derivations of soybean and linseed fatty acids known as adducts, to provide more economical large-scale methods of preparation and to evaluate their utility as plasticizers and stabilizers for plastics and as components of synthetic resins.

- (3) Organic chemical studies to convert safflower oil into industrially useful chemicals. Developmental studies would

be carried out to determine their value for use in specific industrial areas such as surface coating of food containers, detergents, foam polymers for padding and insulation and plasticizers. Methods of dehulling safflower seeds so as to reduce processing costs, and improve the value of the oilmeal would be sought. Components of the oilmeal would be studied to provide the basis for processing the meal for maximum feeding and industrial value.

(4) Expanded research to develop new industrial materials from cottonseed oil, to produce oils of prime quality, and to identify minor constituents which affect its properties.

(5) Expanded research on castor beans to transform the oil into various industrial chemicals, lubricants, and other products for which it is especially adapted.

(6) Research on peanuts to expand markets through emphasis on improved quality of products.

E. Increase of \$250,000 under the activity, "New and Special Plants" composed of

a. Increase of \$150,000 to expand research on the chemical screening and composition of new plants and plant seeds to discover new oilseed and fiber crops to meet industrial needs.

Need for Increase: New crops profitable to farmers as replacements for crops now in surplus are urgently needed to maintain a balanced, progressive, and profitable agriculture. A vigorous program is needed to search for valuable constituents in the very large number of non-commercial plants on which there has been little or no research. Chemical analysis and screening can show the presence of new and different oils, gums, fibers, and protein, which can fill industrial needs not served by existing crops. The soybean is an example of the potential value of a new crop in promoting better balance in our agricultural economy. It is important that the new crops have large scale economic uses which do not replace other agricultural commodities.

Industrial use of vegetable oils has remained nearly stationary during the last decade at a little over 3 billion pounds annually for their traditional markets in protective coatings, soaps and detergents, and various other uses. In contrast, utilization of synthetic materials for these purposes has increased markedly. For example, production of synthetic resins for protective coatings more than doubled from 1945 to 1955, reaching 623 million pounds in 1955. Failure of certain vegetable oils to maintain their competitive industrial position as raw materials is due partly to deficiencies for specialized needs. Discovery of new crops containing vegetable oils with qualities and properties better fitted to present needs and which can be produced commercially would benefit both industry and the farmer.

Present consumption of paper and paper products in the United States is over 30 million tons annually. This market is expected to reach 56 million tons by 1975. In addition, production of purified pulps for chemical use, chiefly in rayon fiber and cellophane film manufacture, doubled from 1950 to 1955 and now amounts to about a million tons annually. A new pulp crop of good agronomic and technical suitability could thus find a ready-made outlet in this large and growing industry. An adequate assessment of a large number of fibrous crops for this purpose would require an expansion of present research.

Plan of Work: New plant materials would be obtained for study. The chemical screening of seeds from selected plant species for total oil content and fatty acid composition would be initiated in order to discover oils that have industrial utility. Screening studies to discover new plant sources of fiber would be expanded to include preparation and evaluation of pulps for papermaking or chemical use.

b. Increase of \$100,000 to expand research on sugar to develop derivatives having new and extended uses.

Need for Increase: Production of sugar crops for manufacture into sugar in the United States is regulated. It has been estimated that if additional markets could be developed for sugar, present sugar crop acreage could be rapidly expanded. Much of the expansion could take place on land now in surplus crops such as cotton, rice, and, in some areas, wheat.

The 43 million tons of sugar presently produced exceeds by far the total quantity of all the other pure organic compounds which the world produces. Because of its low price (about 9¢ per pound refined), its high purity, and its high chemical reactivity, sugar is an attractive chemical raw material. The byproducts of sugar manufacture also show great promise as industrial raw materials. For example, beet pulp contains large amounts of sugar like compounds (carbohydrates) potentially useful in production of gels, films, paper and textile sizing, etc. Past research in this field has been far too limited in scope and intensity in proportion to the potential gain to the national economy and to the size of the task. A concentrated research effort is urgently needed to develop the potentialities of the sugar crops as the raw material for a vast new chemical industry.

Fields in which sugar-derived chemicals offer distinct opportunities include plastics, agricultural chemicals, solvents, antioxidants, and others.

Plan of Work: Fundamental chemical studies would be initiated to discover methods for converting sucrose and related chemicals from sugar crops into industrially useful chemicals. Investigations would be made of fundamental chemistry of sugar, means of degrading it to potentially useful compounds, and otherwise using sugar and other sugar crop carbohydrates, or compounds derived from them, as intermediates or directly as industrial chemicals.

Developmental research would be initiated and carried out when the fundamental studies suggest that a process or product may have an industrial potential.

F. An increase of \$900,000 under the utilization research and development activity "Poultry, Dairy and Animal Products" composed of:

a. An increase of \$500,000 for expanded research on the production of dry whole milk.

Need for Increase: There are large potential markets for whole milk both in areas of the United States and in the export market. If a stable dry whole milk with good flavor were available, these markets could be developed, milk consumption could be increased, and recurring surpluses could be reduced. Dry whole milk utilizes all of the constituents of milk, whereas other major processed milk products, such as cheese, butter, and dry skim milk, account for only a part of the milk constituents.

An important factor in the economy of the dairy industry is the seasonal surplus, the "flush" production that occurs in the spring when cows are on fresh pasture. For example, 1.5 times as much milk is produced in May or June as in November. Since the fluid milk market cannot absorb this seasonal surplus, it is available for use in the manufacture of attractive and useful milk products.

A dry whole milk of excellent initial flavor that reconstitutes readily into whole milk, even with ice water, has been developed by the Department. However, the flavor deteriorates on extended storage. The product develops a characteristic "cooked" flavor after 3 months at room temperature, and after 9 months when stored at 38 degrees F. The current work is on a pilot-plant scale, using a batch process that would not be feasible commercially. An expanded research program is needed to develop flavor stability and continuous processing methods which would bring this product to commercial utility.

Plan of Work: Extensive chemical engineering investigations would be undertaken to develop continuous processing methods and to establish its economic feasibility. A pilot-plant, continuous vacuum belt dryer would be used for these studies.

Chemical studies of the cause and prevention of storage deterioration, as well as the evaluation of antioxidants and other compounds to prevent staling would be expanded rapidly so that this phase of the problem would be completed when the engineering phases are accomplished. Special attention would be given to retention of all the quality factors of the product, including the nutritive aspects along with those of color and flavor.

Immunological and chemical studies would include fractionation of milk proteins, basic studies of the chemical groups present that may cause allergenic activity, and development of laboratory means of destroying the allergens without loss of food value, flavor, or physical properties.

b. An increase of \$100,000 for expanded research on frozen meat.

Need for Increase: Frozen meats have become a reality in the American home even without large scale commercial preparation of frozen meats. The purchase of sides of beef, pork, and lamb by the consumer for storage in home freezers and lockers is an established practice. Recent estimates indicate that 90 percent of the value of home freezer contents is in meats.

Commercial freezing by meat packers has major advantages. Processing costs could be decreased through large-scale centralized preparation of market cuts. Distribution costs could be lowered by wholesaling packages of individual cuts which a particular market can sell, rather than as "sides" with a fixed ratio of the various cuts. This would tend to decrease seasonal fluctuations in market supply and price. The adverse effects on livestock prices of large marketings brought on for example by drought could also be minimized by frozen processing and distribution over a longer period.

Establishment of large-scale selling of frozen meats would require excellent selection, processing, and preservation of the meat, so that the housewife could buy the frozen cuts with confidence. At present, major handicaps to the expansion of sales of packaged frozen meats are the lack of exact knowledge of the effect of time and temperature on the flavor and texture of the meat. The changes in the proteins, salts, and other constituents brought about by freezing packaged meats must be identified and made available to the packing industry so that sound practices can be established. From such studies additional values in better methods of grading and testing frozen meats would be developed.

Plan of Work: Expansion of research on meat would encompass studies of the time-temperature tolerance of frozen meats and meat products. The changes in flavor, texture, and chemical composition would be determined as they are affected by conditions of freezing and of handling. The effect of exposure to air on quality would be determined and means sought to minimize any adverse changes. Microbiological flora would be identified, and the effects of freezing and storage conditions on growth rate of microorganisms after thawing studied.

Because of the individual variations in different cuts from the same animal, in different animals of the same grade, and in the various grades and finish of meat animals, such research would require many samples and detailed statistical analyses.

c. An increase of \$250,000 for expanded research on animal fats.

Need for Increase: The development of synthetic detergents, resulting from industrial research, has taken away many of the principal outlets for inedible animal fats, particularly the soap market. The production of inedible fats (tallow and grease) has continued at a high level, and now is approximately twice our domestic needs.

The most satisfactory means of absorbing this surplus is in the development of large-volume industrial uses. The contributions which research can make to the solution of this problem have already been demonstrated by the Department. Research has brought about the use of fatty materials as stabilizing plasticizers with a potential annual market well over 100 million pounds. It has demonstrated also that inedible animal fats can be used advantageously in tin plate manufacture, and we are no longer dependent on imported palm oil, once a strategic material. Another important outlet stemming from research is the use of stabilized animal fats in animal feeds; this outlet has shown steady growth and is currently consuming animal fats at the rate of over 300 million pounds a year. One large chemical manufacturer currently produces vinyl stearate at the rate of 2 million pounds per year. This fat derivative developed by the Department shows great promise for use in flexible plastics and in protective coatings.

Additional research is needed to develop other new uses for animal fats. Many possibilities remain for their use in plastics, a tremendous and growing market. The expanding synthetic detergent market also offers opportunities to use new types of detergents prepared from fats particularly for use in the bar form customary for soaps.

Plan of Work: The proposed research would provide for research on (1) the preparation of new types of plastics including the polyurethanes and polyamides from animal fats; (2) investigations of special new outlets for detergents from animal fats, such as toilet bar manufacture; and (3) improvement of the methods for fractionation and determination of the fatty constituents of animal tissues.

d. An increase of \$50,000 for expanded research on hides and leather.

Need for Increase: The meat packing industry produces about 28 million cattle hides annually, or about 5 million in excess of domestic needs. This surplus has resulted partly from increased meat consumption and partly from increasing competition of synthetics as a replacement for leather. The low prices for hides reduce the livestock producers income.

The principal use of animal hides is in the manufacture of leather, 85 percent of which goes into footwear. Synthetic and substitute materials have already replaced over 60 percent of sole leather use and plastics are now posing a serious threat to the upper leather market. The National Hide Association, at its 1957 meeting, devoted a great deal of attention to the increasing problems of the industry and indicated the need for more research.

Utilization research offers promise of developing new and broader uses for animal hides through development of better, quicker, and cheaper tanning methods and improvement of the properties of leather to meet the competition of substitute materials. The unique physical structure of hides and skins, which defies imitation, provides a potential for developing products which can successfully meet the competition from synthetics.

Plan of Work: The increase would be used to develop:

1. Leathers with improved washability and perspiration resistance for use in garment applications. Dialdehyde starch, a substance developed by the Department, has shown promise in development of such leather.
2. A more rapid and cheaper process for producing heavy (sole) leather.
3. A rapid hide-dehairing process. The use of depilatory enzymes for such process would be evaluated.

Redirection of Research

In addition to the above appropriation increases requested for utilization research, it is proposed to redirect work in the present farm research program to the extent of \$805,000 in order to place greater emphasis on research on grains as indicated under (b) A (page 10). The funds will be redirected from the following less critical areas of research.

<u>Project</u>	<u>Amount</u>
1. Reduction in <u>farm housing</u> research, including the elimination of the Cooperative Farm Building Plan Exchange and Service ...	\$50,000
2. Reduction of research on <u>fur animal</u> breeding, feeding, management, and diseases	75,000
3. Elimination of <u>goat nutrition</u> research	14,000
4. Elimination of research on breeding for production and meat quality on <u>dual purpose cattle</u>	118,000
5. Reduction of research on production and disease problems of <u>tung nuts</u>	116,000
6. Reduction of funds for development of physical facilities at the <u>National Arboretum</u> , including deferral of planned construction of improvements	185,000
7. Reduction in breeding and disease research on <u>ornamentals</u> , including flowering bulbs, roses, camelias, Easter lilies, mimosa, gladiolas, and giant Saguaro	50,000
8. Discontinuance of all production, breeding, disease, and quality research on <u>sugar sorghum</u>	55,000
9. General reduction of <u>soil and water conservation</u> research	<u>142,000</u>
Total	<u>805,000</u>

In order to strengthen utilization research to the maximum extent possible, it is further planned to review periodically during fiscal year 1959 all of the research programs of this agency and to apply any balances determined to be available to utilization research. In making such determinations, the prior need for funds to meet emergencies, including outbreaks of plant or animal diseases, would be considered. Where such balances are derived from appropriations in the Service other than "Research" the funds would be made available under the authority provided in Section 702(b) of the Department of Agriculture Organic Act of 1944.

(2) Increase of \$39,300 under the activity, "Plant pest control" to begin an evaluation of labels on marketed pest and disease control products registered prior to the passage of Public Law 518, which amended the Federal Food, Drug, and Cosmetic Act.

Need for Increase: With the enactment of Public Law 518 on July 22, 1954, it became necessary to evaluate all uses of pesticide chemicals on food or feed crops registered under the Federal Insecticide, Fungicide, and Rodenticide Act to determine that these uses would not result in food crops carrying illegal residues. Tolerances and exemptions have been established for various uses of over 80 pesticide chemicals. However, in excess of 237 chemicals are presently registered under the Federal Insecticide, Fungicide and Rodenticide Act for uses on food or feed crops. Some of these uses will result in residues on those crops. Approximately 23,000 proprietary products are presently registered containing these chemicals and the labels for each of these products need to be reviewed and evaluated to be sure that the treated food crops will be in compliance with Public Law 518 and to assure growers, experiment station and extension personnel, and State regulatory officials, as well as the registrants, that the product may be used safely. The present staff is not only unable to keep up with new product submissions and the revised labeling now being presented for review, but has been unable to make any examination of labels of the thousands of products registered prior to the passage of Public Law 518. Many of the directions on these labels may result in contaminated foods and they should be re-examined promptly.

Plan of Work: This proposed increase would permit the Service to begin examination of all older registered labels containing uses on food crops registered prior to the enactment of Public Law 518.

When the review of the registered labeling reveals uses not covered by tolerances, careful examination of all available residue information is then necessary to determine if any residues will result. If residues will remain the registrant must be notified of the necessity for obtaining tolerances. Similarly, if it is indicated that existing directions for use will exceed established tolerances, the registrant must be notified of the appropriate revisions in labeling to comply with the statute.

(3) Increase of \$250,000 under the activity "Plant Quarantine" to (a) provide for taking over full responsibility for foreign plant quarantine work in Florida, and (b) meet the additional workload of Customs Service inspection of passengers' baggage.

Problem and Need for Work: Foreign traffic again set new records in fiscal year 1957 and there is every indication that it will increase even more sharply in fiscal years 1958 and 1959. Nearly 18,500,000 automobiles were inspected at Mexican border ports in fiscal year 1957, an increase of 1,200,000 over the previous year. This traffic has increased at the rate of approximately 1,000,000 vehicles a year since shortly after World War II. The rapid growth of international air traffic is even more pronounced. During fiscal year 1957, more than 110,000 planes were inspected, an increase of 14 percent over fiscal year 1956. Airline officials estimate that air travel will continue to increase approximately 20 percent annually for some years to come. This growth is necessitating the enlargement of

international air terminals and the establishment of new inspection facilities, requiring additional inspection staffs. These include large new international terminals at New York, Miami, and Honolulu. A recent air agreement between the United States and Mexico will result in a number of additional flights from that country.

The over-all inspection workload trend is illustrated by the following tabulation:

	: FY 1956 :	FY 1957		: FY 1958 (estimated)
	:	:	: Percent :	: Percent
Inspections	: Number :	Number	: Increase:	Number : Increase
	:	:	: over 1956:	: over 1957
Airplanes	: 97,351:	110,944:	14	: 120,000: 8
Vessels	: 54,712:	58,341:	7	: 62,000: 6
Vehicles from Mexico:	17,262,188:	18,453,115:	7	: 19,500,000: 6
Baggage, airborne,	:	:	:	: :
pieces of	: 5,880,433:	7,535,088:	28	: 10,000,000: 33
Baggage via auto and:	:	:	:	: :
rail from Mexico ..	: 4,640,249:	4,787,488:	3	: 4,900,000: 2
Containers of plant	:	:	:	: :
material inspected	:	:	:	: :
and certified for	:	:	:	: :
export	: 23,459,525:	25,410,791:	8	: 27,500,000: 8
	:	:	:	: :

These increases in most major plant quarantine activities have added materially to the difficulty of maintaining adequate inspection at ports of entry. Two developments in particular will require special attention in fiscal year 1959:

(a) Assumption of full responsibility for foreign plant quarantine work in Florida (\$100,000).

Need for Increase: Since shortly after the beginning of the Federal foreign plant quarantine program, the State Plant Board of Florida has borne most of the expense of the work in that State. Inspectors of the Board have been designated as Federal collaborators under the general supervision of the Plant Quarantine Division. The Plant Board has now stated that it cannot continue to carry this work after June 30, 1958. The Board points out: (1) that foreign plant quarantine enforcement is recognized to be the responsibility of the Federal Government, and (2) that all available funds are urgently needed for the State's own quarantine, control, and eradication programs, including eradication work on the burrowing nematode, white-fringed beetle and fire ant.

Assumption of full responsibility for the work in Florida would be in line with the policy statement prepared by the National Association of Commissioners, Secretaries and Directors of Agriculture entitled "Federal-State Relations in Pest Prevention and Control Activities," dated October 4, 1955. That statement indicates that this responsibility rests with the Federal Government.

In fiscal year 1957, Florida provided 24 cooperative agents for this quarantine program. The total cost to the State for the year was \$126,525, including personal services in the amount of \$108,563. In fiscal year 1958, it is anticipated that Florida will continue to provide at least \$100,000 toward the cost of the quarantine program.

Plan of Work: For fiscal year 1959, it will be necessary for the Department to increase the Federal plant quarantine staff in Florida by 15 inspectors to take over the work being discontinued by the State. The inspectors will be stationed at the following ports: Miami - 5; Tampa - 2; West Palm Beach - 1; Jacksonville - 3; Pensacola - 1; Key West - 2; and Port Everglades - 1.

(b) Provide additional funds to the Customs Service to permit continuation of thorough baggage inspection (\$150,000).

Need for Increase: In fiscal year 1957, an arrangement was worked out with the Customs Service whereby that agency agreed to thoroughly inspect incoming passengers' baggage for plant and animal quarantine purposes if the Department would provide funds to hire the additional inspectors required. On the basis of estimates furnished by Customs, a total of \$825,000 was transferred to that agency in fiscal year 1957 and \$900,000 is being transferred in fiscal year 1958 to be used for that purpose. Of this increase for 1958, approximately \$50,000 has been required to meet the share of retirement costs borne by the Federal Government.

The Customs Service estimates that on the basis of traffic trends, additional inspection personnel will be required in fiscal year 1959 to maintain baggage inspection at its present level. The basis for this estimate was set forth in a letter dated April 18, 1957, from the Commissioner of Customs which stated; "... Using our 1957 staff financed from Agriculture funds as a base, provision was made for 2% increase in vessel passengers each year and an 18% increase in air passengers each year. Actual vessel passenger increases during the past two fiscal years were 5.9% and 3.6%, respectively. For the first nine months of 1957, the increase was 16.3%. For air passengers, the increases were 18.4% and 24.2% and, for the first nine months of 1957, 17.6%. There is no indication of any lessening of these rates of increase."

The necessity for thorough baggage inspection to keep foreign pests out of the country is demonstrated by the effect of Customs' return to complete inspection in July 1956. During the year prior to July 1956, when "spot-check" inspection was in effect, 244,566 lots of unauthorized plant material were intercepted. In fiscal year 1957, with complete baggage inspection, 290,742 lots were intercepted. This represented an increase of 46,176 interceptions, or 18.8%. During the first five months after baggage inspection was

strengthened, 8,247 lots (39,658 pounds) of meats and meat products were intercepted as compared with 5,428 lots (34,239 pounds) during the same period of fiscal year 1956. This was an increase of 51.9% in the number of lots and 15.8% in the total amount intercepted. Any relaxation of baggage inspection would seriously weaken agricultural protection at ports of entry. The Mediterranean fruit fly apparently was introduced into Florida during the period when "spot-check" inspection was in effect.

Plan of Work: An increase of \$150,000 in the amount transferred to the Customs Service would be required to enable that agency to continue thorough examination of the increasing volume of incoming passengers' baggage.

Various supplemental measures are being taken to increase the effectiveness of the inspection work. Intensive training is being given to recruit inspectors and on-the-job training is being given to the entire inspection force. To enlist the cooperation of the public in the observance of agricultural quarantine restrictions, a moving picture film emphasizing the consequences of bringing infested or diseased plant material and animal products into the country has been prepared. Arrangements are being made to have the film shown on passenger liners and it will also be distributed widely in this country. The importance of observing plant quarantines is being publicized through the press, radio, and television. These supplemental measures aid, but do not take the place of the actual inspection work.

(4) An increase of \$11,760,700 under the activity "Animal disease control and eradication" composed of:

(a) Increase of \$900,000 to meet the requirements of the screwworm eradication program.

Need for Increase: The Second Supplemental Appropriation Act, 1958, approved August 28, 1957, provides \$1,600,000 to begin a screwworm eradication program, a cooperative Federal-State effort to eliminate screwworms from the Southeastern States and to prevent the movement of infested livestock into the screwworm-free area. The losses from screwworm in the Southeastern States are estimated at well above \$10 million annually. It is essential, now that the eradication program has been initiated, that it be carried through to successful conclusion as rapidly as possible to avoid waste of funds which will result from any delay in the eradication effort and to eliminate losses from the pest as soon as possible.

In fiscal year 1958, it is expected that (1) facilities for the production of the screwworm flies which will be sterilized by irradiation will be obtained, remodeled, and equipped, (2) contracts will be entered into for aircraft operations, the planes equipped, and the necessary preparations and arrangements made for flights which will distribute the sterile flies, (3) personnel will be hired and trained, (4) mass production of sterilized flies will be initiated, and (5) an animal inspection and quarantine program to prevent reinfestation

from areas not included in the eradication effort will be developed. It is estimated that the total cost of the program in fiscal year 1958 will approximate \$2,800,000, of which the Federal Government will provide \$1,600,000. The State of Florida will provide approximately \$1,200,000.

Plan of Work: It is anticipated that preparations made in fiscal year 1958 will have progressed to the point where personnel and equipment will be ready to start a full-scale eradication program during the first quarter of fiscal year 1959. Sterile flies will be produced at the rate of 50 million per week. Distribution of sterile flies at first will be concentrated in the southern third of the State of Florida, including the Keys and 10,000 Islands. By January 1959, it is anticipated that fly release operations will be in full swing over the entire screwworm over-wintering area, which is usually south of the Florida-Georgia border line, but which may include parts of Alabama, Georgia, and South Carolina if the winter is mild. Thereafter, the entire area will be treated at the average rate of 500 sterile male flies per square mile until eradication is accomplished. Variations in the number of sterile flies released will depend upon information received from the field inspectors as to the relative abundance of screwworm flies in various areas.

Federal inspection will be established along State lines from Memphis, Tennessee, south along the Mississippi River to where the south Mississippi State border intercepts; thence eastward to the Pearl River and south along that river to the Gulf of Mexico. Twelve inspection stations will be constructed on highways along this line, each comprising stock pens, unloading and reloading ramps, inspection chutes, covered shed, storage room, power sprayer and other facilities and equipment.

Estimated Total Cost: It is estimated that the total cost of the program in fiscal year 1959 will approximate \$4,550,000. Of this amount, it is anticipated \$250,000 will be borne by the States of Georgia, South Carolina, Alabama, Mississippi, and Louisiana for quarantine and inspection work, \$1,800,000 will be provided by the State of Florida, and the Federal Government will assume the balance, of \$2,500,000.

(b) An increase of \$10,860,700 to continue an expanded brucellosis eradication program.

Method of financing the accelerated program. Under Section 204 (e) of Title II of the Agricultural Act of 1954, Public Law 690, approved August 28, 1954, provision was made for \$15,000,000 annually to be transferred from the Commodity Credit Corporation for the purpose of accelerating the brucellosis eradication program. This section was further amended by Public Law 465, approved April 2, 1956, to increase the amount for the fiscal year 1956 to \$17,000,000 and the amount for each of the fiscal years 1957 and 1958 to \$20,000,000.

The funds for the accelerated program and funds available under the appropriation for the regular brucellosis program are shown by the following tabulation:

<u>Fiscal Year</u>	<u>Funds advanced by Commodity Credit Corporation</u>	<u>Appropriation under Salaries and Expenses Agricultural Research Service</u>	<u>Total Federal Cost of Program</u>
1955	\$11,553,697	\$3,774,700	\$15,333,397
1956	16,224,435	3,961,165	20,185,600
1957	17,037,182	3,962,400	20,999,582
1958 (est.)	17,400,000	4,139,300	21,539,300
1959 (est.)	- -	15,000,000	15,000,000

The authority for transferring funds from the Commodity Credit Corporation for an accelerated program expires June 30, 1958. A supplemental appropriation to reimburse Commodity Credit Corporation for the costs of the 1957 accelerated program is being requested for fiscal year 1958. An appropriation to reimburse the Corporation for the cost of the 1958 program will be requested in the 1960 Budget.

Program Operations. Extensive gains were made during fiscal year 1957. Additional States inaugurated work on an area clean-up basis. The number of counties certified during the year exceeded any previous year. The percentage of reactors and infected herds disclosed through tests decreased. There was a continued increase in the number of herds screened by the milk ring method. The brucellosis ring test made it unnecessary to blood-test individual cattle in many herds.

Good progress has been made in brucellosis eradication since the beginning of the accelerated program in October, 1954, as shown by the following tabulation:

<u>Modified - Certified Brucellosis-free Status</u>	<u>October 1954</u>	<u>June 30, 1957</u>	<u>Estimated June 30, 1958</u>
States, and Puerto Rico	3	7	16
Counties	341	735	1,553

The modified-certified brucellosis-free status means that the infection has been reduced to not more than 1 per cent of the cattle in not more than 5 per cent of the herds. Although this means that the area is comparatively free of the disease it is still necessary to continue the work to further eliminate infection and eventually to completely eradicate it.

Area work leading to certification is under way in 34 States.

The data listed below show cattle blood-tested, reactors found to the blood tests, herds ring-tested, and calves vaccinated during fiscal years 1955, 1956 and 1957 respectively, and estimates for fiscal year 1958:

	<u>FY 1955</u>	<u>FY 1956</u>	<u>FY 1957</u>	<u>FY 1958</u> <u>(estimated)</u>
Cattle blood-tested	14,186,241	16,754,195	15,913,396	15,900,000
Reactors to blood test	365,247	366,524	280,253	248,000
Herds ring-tested	1,200,898	1,727,581	1,866,444	1,900,000
Suspicious herds to ring test	278,847	255,503	212,580	213,000
Calves vaccinated	4,381,397	4,772,535	5,501,445	5,500,000

Efforts are being continued to find a satisfactory screen test procedure for the range areas comparable to the ring test in dairy areas. The efficiency of testing cull and dry cows at slaughtering establishments and markets as a means of locating infected herds in range areas is under study. Procedures to accurately identify and trace cull and dry cows to the herds origin need to be improved in order for screen testing to be useful. It is expected that this problem will be solved and screen testing will be approved for at least limited use.

Need for Continuation of Program: The job of brucellosis eradication is only partially completed and it needs to be finished as rapidly as possible.

An interstate brucellosis regulation was put into effect on January 1, 1957, which provides protection to areas which have achieved a certified status by placing certain restrictions on the interstate movement of cattle. To protect the gains already made, it is of the utmost importance that this regulation be adequately enforced.

There is also need to find centers of infection remaining in certified areas before they have a chance to spread. The brucellosis ring test provides a comparatively inexpensive method of continuing screening of large dairy areas.

Proposed Programs in 1959. The proposed appropriation under this item would provide a total Federal appropriation of \$15,000,000 for the eradication of brucellosis.. This will permit the maintenance of the gains accomplished under the accelerated program. In addition, it is estimated that cooperating states and counties would continue to provide approximately \$16,700,000 for this work in 1959 making a total of \$31,700,000 available for this program from Federal, State, and local sources. The following table compares federal and state expenditures for the program for the fiscal years 1955-1959:

A. Federal Cost

<u>Fiscal Year</u>	<u>Operating Funds</u>	<u>Indemnities</u>	<u>1/Total</u>
1955	\$10,718,791	\$4,614,606	\$15,333,397
1956	14,125,249	6,060,351	20,185,600
1957	16,576,862	4,422,720	20,999,582
1958 (est.)	17,039,300	4,500,000	21,539,300
1959 (est.)	11,481,000	3,519,000	15,000,000

B. Funds provided by cooperating States and counties:

<u>Fiscal Year</u>	<u>Operating Funds</u>	<u>Indemnities</u>	<u>Total</u>
1955	\$ 9,497,240	\$1,736,491	\$11,233,731
1956	11,595,852	4,134,627	15,730,479
1957	12,159,444	3,682,118	15,841,562
1958 (est.)	13,128,300	3,571,700	16,700,000
1959 (est.)	<u>13,128,300</u>	<u>3,571,700</u>	<u>16,700,000</u>

1/ Federal costs include both appropriated funds and funds transferred from the Commodity Credit Corporation.

Plan of Work: Eradication efforts in certified areas will be continued to further reduce the incidence of the disease and place those areas closer to the final goal of eradication. Work in an additional 400 counties leading to early certification will be undertaken, and efforts in other counties will be expanded in the direction of lowering the incidence of infection in preparation for work on an area clean-up basis.

Emphasis will be placed on the following procedures:

1. Locating infected herds and cattle through the brucellosis ring test and the blood test.
2. Removal of reactors.
3. Calf vaccination to induce resistance in otherwise susceptible cattle.
4. Enforcement of interstate brucellosis regulations to prevent spread of the disease.

A more complete statement of the brucellosis eradication program will be found in the "Status of Program" under the item "Plant and animal disease and pest control".

(11) Increase of \$500,000 under "Meat Inspection" to provide inspectors needed in Federally inspected meat packing plants.

Need for Increase: During the past few years there has been a sharp rise in the number of meat packing plants subject to the meat inspection law. Applications for the inspection service and inquiries concerning the inspection requirements indicate that this rate of increase in number of plants will continue. Several factors are contributing to the increase in the demands for Federal meat inspection:

1. Improved consumer purchasing power creates a broader market for meat products and consequently a larger number of meat packing plants are selling their meat products in interstate trade;
2. The trend toward decentralization of the meat packing industry has been stepped up because of changes in meat merchandising, particularly increased consumer packaging by interstate packers;
3. Chain store merchandising has placed emphasis on meat inspection. Chain stores require the seller to deliver inspected meats so that they may be moved freely in interstate commerce;
4. Institutional buying by both military and civilian agencies requires delivery of Federally inspected meat products;
5. Many meat packers have been influenced to come under the Federal meat inspection program because of the increased emphasis on control by State and municipal meat inspection systems.

The necessity for absorbing higher operating costs, including the costs of within-grade salary advancements, has operated constantly to reduce the number of inspectors which can be hired with the same amount of funds.

Meat Inspection Must be Geared to Plant Operations: The inspection routines constitute an integral part in the production process in the inspected meat packing plant. The inspectors work side by side with meat packing plant production men, each with his specialized duties that taken together convert livestock into clean, wholesome, disease-free, unadulterated, and properly labeled meat and meat food products. Because the inspection procedure constitutes an integral step in the production process, the efficiency of that process depends on the inspection positions being adequately manned with inspection personnel. If a shortage of inspection personnel develops this has the immediate effect of limiting plant production. Therefore, a shortage of inspection personnel makes itself felt immediately in the economy of the inspected packer's operation and increases his production costs. Many packers individually and through their associations have complained because the shortage of inspectors adversely affects their plant operations.

Increased Workload: The need for additional inspectors has been growing over the past few years especially because of the increase in number of meat packing plants and the number of cities and towns in which the plants are located, as shown by the following tabulation:

<u>Fiscal Year</u>	<u>Number of Plants</u>	<u>Number of Cities & Towns</u>
1954	1,067	410
1955	1,120	435
1956	1,184	471
1957	1,244	502
1958 (est.)	1,306	520
1959 (est.)	1,356	540

The increase in number of plants estimated for 1959 is 4% above 1958 and 9% over 1957. The increase in number of cities and towns estimated for 1959 is 4% above 1958 and 8% above 1957. It is also estimated that the number of animals slaughtered in 1959 will be about 3% higher than in 1958.

While it has been possible to effect some economies in operation, and for the inspectors to work a greater amount of overtime (which cost is reimbursed by the packers), the current situation cannot be met by either of these means.

Plan of Work: The requested increase of \$500,000, or 3% above the current appropriation of \$16,826,000, would provide for approximately 82 more positions in 1959 than could be carried with the current appropriation.

Development Program for the National Arboretum

Legislative Authorization: Under the Act of March 4, 1927 (20 U.S.C. 191-194), the Secretary of Agriculture is authorized and directed to establish and maintain a National Arboretum for purposes of research and education concerning tree and plant life. A council created under Section 4 of this Act advises the Secretary of Agriculture on planning and developing the National Arboretum.

Status of Development Program: The National Arboretum occupies a site of approximately 400 acres in the District of Columbia. Basic developmental work has largely been done. A program of long-term development, involving the expenditure of over \$3 million for roads, trails, buildings, greenhouses, etc., to bring the Arboretum to a fully functioning condition was developed in 1947 in cooperation with the National Arboretum Advisory Council. Progress was slow, however, until \$150,000 was provided for fiscal year 1956 for road construction. An additional \$127,430 provided in fiscal year 1957 brought the development funds to \$277,430, and the operation and maintenance funds to \$222,570, a total of \$500,000. An additional \$19,000 was provided in the 1958 Appropriation Act for costs of the retirement fund. The 1958 allotment for operation and maintenance has been increased by approximately \$40,000 to permit more rapid development of the plant collections and to meet additional operating and maintenance costs.

A motor vehicle storage and service building and two public comfort stations have recently been completed with funds provided in fiscal year 1957. In fiscal year 1958, two small buildings will be constructed for interim housing of the herbarium (now located at Beltsville). These buildings will be used as a unit of the final service facilities when the permanent quarters for the herbarium are provided. Plans and specifications for the headquarters and laboratory building, drawn in fiscal year 1949, will be brought up to date to provide a more accurate basis for estimating costs of construction. In fiscal year 1958, \$185,000 has been made available for the substantial completion of the construction and surfacing of roads and for work on footpaths, trails, and parking areas.

The 1959 budget estimate of \$334,000 includes \$284,000 for operation and maintenance and \$50,000 for the construction of greenhouses (a headhouse and one new greenhouse, including relocation of existing greenhouse facilities).

To complete the development program in future years there will remain the construction of the headquarters and laboratory building, additional greenhouses, 2 residences, entrance gates, and the extension of foot trails, paths, etc.

During fiscal year 1957 the Arboretum was again open to the public for 5 weeks during April and May. Recorded attendance of 36,000 was slightly less than the year previous due to rather unfavorable week-end weather conditions. Maximum daily attendance was 10,575 for April 28. Many additional groups and individuals have visited during office hours throughout the year. Due to unfinished road conditions it seems currently advisable to delay full-time opening, anticipated for this fall, until the spring of 1958.

The following table reflects the estimated cost of the development program:

National Arboretum

	Obligations, 1948-56	Obligations, 1957	Estimated Obligations, 1958	Budget Estimate, 1959	Future Years	Total
A. Development of physical facilities:						
1. Acquisition of land	\$286,185	- -	- -	- -	- -	\$286,185
2. Preparation of plans and specifications for buildings, roads, and other facilities	135,100	\$3,500	\$20,000	- -	\$80,000	238,600
3. Buildings:						
Headquarters office and laboratory buildings providing rooms for an herbarium, library, group meetings, exhibits, and offices, and designed for future extensions ...	- -	- -	- -	- -	1,200,000	1,200,000
Greenhouse facilities	- -	- -	- -	\$50,000	241,000	291,000
Residences (2):						
Propagator's residence	- -	- -	- -	- -	23,000	23,000
Guard's residence	- -	- -	- -	- -	19,000	19,000
Entrance facilities:						
Guardhouse, restrooms (including sewer lines and septic system) ..	20,000	31,273	- -	- -	- -	51,273
Entrance gates, drinking fountains, public shelters, etc.	- -	- -	10,000	- -	50,000	60,000
Service buildings:						
Motor vehicle building and shop ..	- -	63,001	- -	- -	- -	63,001
Farm machinery buildings	18,000	- -	- -	- -	- -	18,000
Equipment and supply buildings ...	- -	- -	30,000	- -	- -	30,000
Total, buildings	38,000	94,274	40,000	50,000	1,533,000	1,755,274

	: Obligations, : Obligations, : Estimated : Budget :		: Estimate, : Future :		: Total :
	: 1948-56 :	: 1957 :	: 1958 :	: 1959 :	
A. Development of physical facilities --	:	:	:	:	:
Cont.	:	:	:	:	:
4. Roads:	:	:	:	:	:
Roads (7.5 miles), bridges and	:	:	:	:	:
roadside grading	\$290,173	\$143,745	\$165,000	- -	\$598,918
9 miles of footpaths and trails,	:	:	:	:	:
parking areas and overlooks	16,000	10,000	20,000	- -	181,000
Total, roads	306,173	153,745	185,000	- -	779,918
5. Utilities:	:	:	:	:	:
Water supply, sewage, and electric	:	:	:	:	:
lines	92,900	12,000	2,000	- -	139,900
6. Equipment	24,500	- -	- -	- -	44,500
7. Fencing, grading, repairs and	:	:	:	:	:
miscellaneous	104,858	7,823	10,000	- -	167,691
Total, physical facilities and	:	:	:	:	:
land	987,716	271,342	257,000	\$50,000	3,412,068
B. Operation and maintenance	1,145,709	222,356	262,000	a/	- -
Total, National Arboretum	2,133,425	493,698 b/	519,000	- -	- -

a/ To be determined annually; requirements dependent on progress in installation of physical facilities and development of plant collection.

b/ Includes \$6,527 of fiscal year 1956 funds available for obligation in fiscal year 1957 by Bureau of Public Roads for supervision of road construction contract let in fiscal year 1956 (11 Comp. Gen. -#A-43067).

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

For expenses necessary to perform agricultural research relating to production and utilization, to control and eradicate pests and plant and animal diseases, and to perform related inspection, quarantine and regulatory work, and meat inspection:*** Provided further, That appropriations hereunder shall be available for the operation and maintenance of aircraft and the purchase of not to exceed
1 [one] two, of which one shall be for replacement only: ***

Research: For research and demonstrations on the production and utilization of agricultural products, and related research and services, including administration of payments to State agricultural
2 experiment stations; [\$57,794,890] \$60,744,890, including not to exceed \$50,000 for the acquisition of land for soil and water con-
3 servations research facilities: Provided, That the limitations
4 contained herein shall not apply to [\$1,955,000 for the construction, alteration, and repair of buildings, and acquisition of necessary land therefor by donation or exchange, or at a cost not to exceed \$5,000 for each facility] replacement of buildings needed to carry out the Act of April 24, 1948 (21 U.S.C. 113a);

Plant and animal disease and pest control: For operations and measures to control and eradicate pests and plant and animal diseases and for carrying out assigned inspection, quarantine and regulatory activities, as authorized by law; [\$26,082,000] \$42,132,000, of which \$1,000,000 shall be apportioned for use pursuant to section 3679 of the Revised Statutes, as amended, for the control of out-
5 breaks of insects and plant diseases [under the joint resolution approved May 9, 1938 (7 U.S.C. 148-148e), and the Act of August 13, 1954 (7 U.S.C. 148),] to the extent necessary to meet emergency
6 conditions: [Provided, That no part of this appropriation shall be used to pay the cost or value of trees, farm animals, farm crops, or other property injured or destroyed as a result of plant insect and disease control activities except potatoes and tomatoes as authorized under the Golden Nematode Act: Provided further, That, in the discretion of the Secretary, no part of this appropriation shall be expended for the control of sweetpotato weevil in any State until such State has provided cooperation necessary to accomplish this purpose, or for barberry eradication until a sum or sums at least equal to such expenditures shall have been made available by States, counties, or local authorities, or by individuals or organizations for the accomplishment of this purpose, or with respect to the golden nematode except as prescribed in section 4 of the Golden Nematode Act];***

The first change would provide for the purchase of two airplanes, of which one would be for replacement. Both planes would be used for plant pest control activities, and would be four-place observation planes designed specifically for agricultural work and equipped for spraying and dusting operations. They would cost approximately \$17,000 each. The additional plane is needed because of the increased workload due to the screwworm, fire ant, and other control

programs. During the past year, it was necessary to spend approximately \$15,000 for the lease of aircraft which were not adapted to the needs of the Service nor always available when needed. This has handicapped program operations. The other plane would replace a small two-place plane purchased in 1952. The new plane would be safer to operate and much more efficient for the pest control work.

The second change would insert language which would provide authority for the acquisition of land for experimental purposes for the soil and water conservation research laboratory being constructed at Morris, Minnesota, with funds provided in fiscal year 1958. The site for the laboratory consists of only 15 acres. The additional land is needed to provide several small experimental areas nearby covering varying special problem soil types included in the original objectives of the laboratory.

The third change would delete the provision in the 1958 Appropriation Act which applied specifically to the construction, alteration, and repair of laboratories and other buildings and the acquisition of land therefor. This provision applies to non-recurring appropriation items and will not be needed in 1959.

The fourth change would add language to provide for emergency replacement of buildings used in connection with research on foot-and-mouth and other contagious diseases at Plum Island, New York. Prompt replacement of buildings which might be destroyed by fire, storm, or other cause would be essential.

Because of the isolated location of the research station and the highly contagious nature of foot-and-mouth or other contagious diseases which may be studied there, it is essential that it be possible to make replacements promptly. Experience already acquired because of storm and fire damage emphasizes the need for such authority. This is in effect standby authority to enable the Department to replace damaged or destroyed buildings which may cost more than the limitation prescribed in the Appropriation Act. The amount cannot be determined in advance.

The laboratory at Plum Island, for which \$10 million was appropriated in 1952, is now in use. With the construction of a few remaining supporting facilities in fiscal year 1958, the installation will be completed and there will be no balance remaining available from the 1952 Appropriation for the emergency replacement of buildings should that become necessary.

The fifth change proposes to delete references to the Act of May 9, 1938, and the Act of August 13, 1954, which amended that Act. It is not necessary to include these references in the appropriation language and deletion of them will shorten and simplify the language. Appropriate references will be included hereafter in the language citations in the printed Budget. The deletion of these references will not affect in any way the nature or scope of the work conducted under this item.

The Act of May 9, 1938, provides for control of incipient or emergency outbreaks of insect or plant diseases, including grasshoppers, Mormon crickets, and chinch bugs. The Act of August 13, 1954, amending it provides for cooperation with the Governments of Canada or Mexico in the control of outbreaks of insect pests or plant diseases.

The sixth change would:

- (a) Delete language prohibiting the use of this appropriation for payment of indemnities because of injury or destruction of property as a result of plant insect and disease control activities, except potatoes and tomatoes as authorized under the Golden Nematode Act. Inclusion of the language is unnecessary because indemnity payments are specifically prohibited by section 102(c) of the Department of Agriculture Organic Act of 1944 (7 U.S.C. 147c), and authority to pay indemnities for potatoes and tomatoes is specifically set forth in the Golden Nematode Act (Act of June 15, 1948).
- (b) Delete the proviso which would permit the Secretary, in his discretion, to require cooperation from States or others in carrying out the sweetpotato weevil control, barberry eradication, and golden nematode control programs. This proviso is a repetition of the authority which the Secretary already has in section 102(a) of the Department of Agriculture Organic Act of 1944 (7 U.S.C. 147a), and in the Golden Nematode Act (7 U.S.C. 150c), to require cooperation at his discretion.

The Department is in full agreement with the objective of the language which it is proposed to delete. The States are assuming an increasing amount of the responsibility in planning, administering, and financing these programs. In cooperation with the National Association of Commissioners, Secretaries, and Directors of Agriculture, as representatives of the States, the Department has developed criteria for measuring the extent of responsibility of the Federal Government and the States in carrying out these and similar programs.

The deletion would in no way affect the authority of the Secretary and is proposed with the sole intent of shortening and simplifying the wording of the language.



STATUS OF PROGRAM

The Agricultural Research Service carries out the Department's physical, biological, and economic science research in the fields of livestock, crops, soil and water conservation, farm economics, agricultural engineering, utilization research and development, and home economics, and conducts fundamental and applied research in these fields.

Research is conducted at the 12,000-acre Agricultural Research Center, Beltsville, Maryland, and at numerous locations in the States, Territories and Possessions, and in foreign countries. A large part of the research is in cooperation with State agricultural experiment stations and other public and private agencies. Research is also conducted under contract with various public and private agencies and institutions.

Plant and animal disease and pest control programs are conducted to prevent introduction into the United States of pests and diseases of foreign origin, to prevent the spread interstate of those within the country, and to control and eradicate them where found. Extensive programs are conducted at numerous locations in all States and Territories, on farms, ranches, sea, air and border ports of entry, public stockyards, establishments licensed under the Virus-Serum-Toxin Act, etc.

Work also includes enforcement of the Federal meat inspection laws, which assures production of disease-free, clean, and wholesome meat and meat products for both civilian and military use and for foreign commerce. This is accomplished by supervising slaughtering and meat processing operations at meat packing plants, application of controls over imported meats to assure the same protection as in the case of meats produced domestically, and a system of certification of meats for export to keep foreign markets open to American meats.

The Agricultural Research Service, as a part of its regular programs, conducts research and prepares plans for preventing or combating foreign plant and animal diseases which might be intentionally introduced into the United States. Research is also conducted on protective measures for decontamination and utilization of crops, animals, or soils affected by direct radiation or radioactive fallout.

FARM RESEARCH

Current activities: Investigations are conducted on production methods and improvement of field and horticultural crops and of farm livestock, poultry, and domestic fur animals, including means of control of plant and animal pests and diseases. Soil and water conservation research is conducted to develop new and improved soil and crop management practices, improve irrigation and drainage methods, develop information on watershed hydrology, improve fertilizers and lining materials, and determine the relations of soils to plant and animal nutrition. Farm economics studies are made to find profitable adjustments in farming by type and size of farm and their relation to costs, returns, and total farm output of different products. Farm economics research also covers investigations of efficiency in use of labor, equipment, land, water, new and improved farming techniques, inventory and analysis of land resources and problems of land valuation, taxation, debt, tenure, and risk. Engineering studies are made to improve the mechanization of crop and livestock production,

and the harvesting and processing of farm crops, to develop better types of farm structures, and to develop new uses for electricity on farms and adapt electrical equipment to farm use.

In recent years farm research has been continuously reviewed to emphasize work which would meet problems of agricultural surpluses, as well as market demands. This has included breeding and development of the meat-type hog to reduce fats in surplus, production of milk with high solids and lowered fat content, corn with waxy starch for glues and adhesives, corn with high amylose content for industrial use, etc. The program for introduction and development of new crops has also been expanded and basic research essential to agricultural needs has been steadily increased.

Selected Examples of Recent Progress

Animal Husbandry Research

1. Nonfat milk constituents inherited independently and are independent of fat. This finding offers an opportunity, through selective breeding, to develop strains of cattle that yield milk with higher ratio of solids-not-fat to fat. Studies at Beltsville, Md., have resulted in the development of suitable equipment for practical measurement of the solids-not-fat content of milk of individual cows. This equipment furthers selective breeding procedures aimed at developing strains of cows that will yield milk of a more desirable composition.
2. Raising heifers on liberal forage and limited grain rations proves successful. Young dairy calves can be successfully reared to calving time on a ration using only 370 pounds of whole milk, 500 pounds of grain, and unlimited quantities of good alfalfa hay. When alfalfa silage or equal parts of alfalfa and corn silages replaces the hay in such a feeding schedule, low rates of gain and unsatisfactory growth resulted. The use of wilted alfalfa silage plus 1 pound alfalfa hay per hundred-weight, or wilted alfalfa silage plus 2 pounds grain per day to calving produced calves that were only slightly smaller than calves fed on hay only. Calves fed the wilted alfalfa silage consume less dry matter than calves fed hay. Reason for the decreased consumption of silage is not apparent. In these experiments the amount of grain consumed during the first 4 months of life was significantly correlated with gain in body weight.
3. Magnesium requirements of dairy calves affected by type of diet. The magnesium requirements of dairy calves are higher when they are fed a milk diet than when the diet contains low magnesium hay. On similar levels of magnesium, the milk-fed calves developed signs of magnesium deficiency, including cardiovascular lesions. These symptoms were absent in calves whose diets contained hay. The calves on the milk diets also developed signs of vitamin E deficiency (white muscles). Addition of vitamin E to the diet corrected the white muscle condition but had no effect on the cardiovascular changes. These experiments indicate that the inclusion of hay in the

diet of the young calf protects against cardiovascular and muscle changes which may occur on milk diets of similar magnesium content.

4. New dairy record plan proves popular. The new Weigh-a-Day-a-Month Dairy Recordkeeping Plan inaugurated during the past year as a third plan of the National Cooperative Dairy Herd Improvement Program now has an enrollment of 3,008 herds consisting of 60,508 cows. This plan, together with the Owner-Sampler and the Standard DHIA Recordkeeping Plan, include approximately 64,000 herds and 2,000,000 cows on which month-to-month dairy production and feed records are being kept. This is the largest number of herds and cows ever included in a dairy recordkeeping program.
5. X-ray examination of calves proves useful in determining genotype for bovine dwarfism. The lumbar vertebrae of carriers of bovine dwarfism frequently show characteristic abnormalities which can be recognized by taking X-ray pictures of calves less than 10 days of age. Results of the X-ray technique at a number of cooperating experiment stations indicate that about 80 percent of the dwarf-free animals have recognizably normal vertebrae, although this figure varies considerably in different blood lines. Of 187 carriers that have been X-rayed, 167 or about 90 percent have shown recognizable abnormalities.

This technique is considered useful for screening potential breeding animals prior to progeny testing. It is not presently considered sufficiently accurate for use as a basis for merchandising cattle.

6. Pelleting feed for steers increases efficiency. Pelleting a complete ground mixed ration for steers increased efficiency by more than 10 percent as compared to feeding the same ration unpelleted, or feeding the concentrates and roughage separately in trials at Front Royal, Va. Feed consumed per pound of gain was 9.3 pounds for the pelleted group as compared to 10.4 and 10.6 pounds for the other two groups.
7. Selection of swine for low backfat indicated as means for modifying lean-to-fat ratio in carcasses. A selection experiment designed to determine how fast and to what extent the lean-to-fat ratio in the hog carcass can be changed by selection has progressed to the second generation in a herd of Durocs and is now entering the first generation in a Yorkshire herd. In both breeds the plan is to develop, by selection in opposite direction, a line high in fatness and a line low in fatness. The primary criterion of selection in the various lines is backfat thickness and a live weight of 175 pounds. Results of such selection in the Duroc herd showed it to be about 17 and 39 percent effective in the live animal in the first and second generations, respectively.

Carcass data obtained on samples of pigs show that low line Duroc pigs consistently exceeded high line Duroc pigs in yield of trimmed hams, trimmed loins, shoulder butts, and lean meat in hams. The difference between the high and low line pigs in yield of these 4 preferred cuts has reached about 1 percent, which is equivalent

to a difference of about 2 pounds for each 200-pound pig marketed. Although the difference is not very large by itself, when multiplied by the millions of hogs marketed in the United States each year it would make a substantial difference in the supply of pork available in the form of the most favored product, namely, lean meat. Thus the results obtained to date strongly suggest that selection based on back-fat thickness may offer an excellent opportunity for quickly modifying the lean-to-fat ratio of hog carcasses.

8. Amount and quality of protein in diet influence tolerance of the growing pig for free gossypol in cottonseed meal. For many years it has been a generally accepted belief that not more than 8 or 10 percent of cottonseed meal could be used with safety in swine rations because of the toxicity of free gossypol contained in it. Experiments during the past year have shown that both the level of total protein in the diet and the quality of this protein are factors in determining the amount of free gossypol which will be tolerated by the pig. At a given level of gossypol in the diet, resistance to toxicity was found to increase as the protein level was increased between 13 and 20 percent. Of greater significance is the finding that the tolerance for gossypol is related to the kind or quality of protein in the diet. With diets utilizing meals in which protein is of relatively greater biological value as determined by rat tests, there is markedly less susceptibility to toxicity from gossypol than with diets utilizing meals of lower protein quality. Further studies have been initiated to identify those factors in the dietary protein which influence the reaction of the pig to free gossypol.
9. Protein levels in swine feeding and fat measurements compared. Comparisons between two levels of protein (14 percent versus 16 percent with subsequent reduction at fixed intervals on each level) showed that the higher protein level significantly reduced all fat measurements except weight of leaf fat in summer feeding trials, but not in winter. Hams produced on the higher protein diet contained more lean in proportion to separable fat and analyses showed higher moisture and protein and less fat.

Similar work at Iowa on barrows and gilts (Ashton et al. 1955) and on boars (Speer et al. 1957) showed significant decrease in backfat measurements with increased protein level of the diet. Protein level did not affect rate or efficiency of gain on pasture, but boars in dry lot showed improved gains and feed efficiency as protein increased from 13 percent to 19 percent but a decrease above the 19 percent level.

10. Crosses of mutton breeds with Merinos prove superior to crosses within mutton breeds. The use of fine wool Merinos in crosses with mutton breeds gave production indexes superior to those obtained in crosses among the mutton breeds at Beltsville, in 1956. Average production indexes of 80.7, 107.8, 87.5, and 86.4 were obtained from matings of Merino ewes to Merino, Hampshire, Shropshire, and Southdown rams, respectively, as compared with an average production index of 74.7 for all two-breed crosses of the three mutton breeds and 85.5 for all three-breed mutton crosses.

11. Range sheep can be bred for feed efficiency. Studies of range Rambouillet lambs at Dubois, Idaho, show a wide range of feed efficiency among individual lambs. A highly significant correlation was found between efficiency and average daily gain for ram lambs, indicating that selective breeding should prove highly effective in improving the feed utilization efficiency of range sheep. Results of these tests are as follows:

	Ram lambs	Ewe lambs
Pounds of feed per pound gain.....	6.6 to 10.3 lbs.	8.3 to 12.0 lbs.
Average daily feed consumption....	5.65 lbs.	4.30 lbs.
Daily gains.....	0.45 to 0.92 lbs. (ave. 0.73)	0.32 to 0.57 lbs. (ave. 0.43)

12. New growth factor for chicks discovered. A chick growth factor in egg yolk was discovered at Beltsville several years ago when, during biological tests for vitamin B₁₂ potency of yolk, it was observed that the chicks responded to some material in the yolk other than B₁₂. The factor can be extracted from yolk with practically any fat solvent. It therefore appears to be entirely different from the other unidentified growth factors (fish, whey, and alfalfa factor) which are water soluble. When a high energy basal diet containing animal fat and sources of the other three water soluble factors is supplemented with egg yolk, a consistent increase in growth of 10 to 12 percent and considerable improvement in feed efficiency over the basal diet is obtained. Considerable progress has been made in concentration of the factor. Concentrates have been prepared which contain 30 times the potency of yolk. If cheap sources of the factor can be found and field trials should indicate even as much as 50 percent of the laboratory response, the result would be an improvement in broiler production efficiency as great as from any single discovery of recent years.
13. Dietary supplementaion with fats significantly increases efficiency of feed conversion with both growing chickens and laying hens. In many experiments with growing chickens dietary fats increased the rate of gain but this is not as consistent as the improvement

in efficiency of feed conversion. There is some improvement in feed efficiency with low levels (20 percent) of dietary protein, but optimum results are obtained when the protein content is increased along with the caloric level.

In experiments with laying hens results have been obtained which indicate that the calorie-protein ratio is not as critical as with growing chickens. Hens on protein levels ranging from 12 to 18 percent were tested on low and high calorie diets. The only difference noted in performance was a significant increase in efficiency of feed conversion on the high energy levels. The ability of a 12-percent protein diet to support optimum performance has significant economic implications.

Experiments have been undertaken to test the effects of administration of estrogen-like compounds on diets of varying caloric levels with growing turkeys, but the only consistent results obtained were improvements in efficiency of feed conversion when fat was added to the diet. In all these experiments the added fat appeared to function solely as a source of energy. Other dietary constituents which have been shown to improve rate of gain and efficiency of meat conversion are the unidentified growth factors present in fish byproducts and egg yolk.

14. Resistance of chicks to heat studied. New Hampshire chicks especially bred for divergence of thyroid size have been exposed to high ambient temperatures (+95°F.) for 4 weeks. In newly hatched chicks the chief effects of high temperatures were depression of growth rate and thyroid size to approximately the same extent in both line studied. Birds with large thyroids exhibited much less mortality at high temperatures than did those with relatively small glands. Assay procedures, using either a replacement therapy or a radioactive iodine tracer method, have shown that in these especially developed lines thyroid activity is greater in the large thyroid line than in the small thyroid lines. Thus, it appears probable that the thyroid hormone is important in enabling the chick to resist the adverse effects of high temperatures.

Animal Disease and Parasite Research

15. Satisfactory complement-fixation diagnostic antigen for anaplasmosis prepared in quantity from infected cattle blood. Pooling and standardizing individual lots of anaplasmosis antigen yield volumes sufficient to furnish cooperating laboratories a common product for research and surveys of incidence of the disease. With the presently used complement-fixation test it is now possible to prevent or control the spread of anaplasmosis from infected to non-infected animals in areas where the incidence of disease is low to moderate. This has been demonstrated in a number of herds in the United States and in the Hawaiian Islands.
16. Control of leptospirosis studied. Controlled field studies strongly indicate that leptospira bacterins have little or no value in preventing the spread of leptospirosis in cattle. In studies of diagnosis of leptospirosis it was found that an incubation period of 10 minutes for the agglutination-lysis test is equally as efficient as the recommended one of 2 hours in obtaining maximum reactions. This finding adds to the practicality of this test as a potential tool in efforts to control this widespread disease.
17. Mucosal-respiratory complex in cattle studied. Three immunologically different types of virus have been identified within this disease complex. One is responsible for the respiratory infectious bovine rhinotracheitis (IBR). Two type produce alimentary system manifestations called Indiana and New York virus diarrhea. Recovery from the disease confers at least 6 months immunity which begins 6 to 12 days following infection. Basic virus studies show IBR virus is present in nasal secretions for approximately 12 days following infection, and can be recovered only by tissue culture procedures or cattle inoculation. The alimentary tract viruses (Indiana, New York) have been adapted to rabbits. Studies of the susceptibility of other livestock to the complex show that horses, sheep and swine are not susceptible to it but that goats are susceptible to the IBR virus.

Bovine embryonic kidney tissue culture vaccines have been prepared commercially which show very promising results. However, it appears that fattened steers are not as well immunized as non-fattened steers.
18. Immunization of calves to infection with the lungworm found to be generally successful. Exposure to very small doses of infective lungworm larvae produced an immunizing infection so light that it did not interfere significantly with the normal growth of the test calves. After the animals eliminated this infection spontaneously, 85 percent of them proved highly resistant to reinfection. Generally, the calves so immunized were much less affected by lungworms than were the controls, when exposed to a like heavy dose of lungworm larvae. A trial with only one animal suggests that resistance to the cattle lungworm also can be produced by giving a calf infective larvae of a sheep lungworm, which does not mature in cattle.

19. Compound tested as cattle parasite treatment. Because of wide interest in the systemic phosphorus insecticide Trolone (ET-57), the compound was studied for its potential action against common worm parasites of farm animals. In cattle, standard dosages of this compound efficiently removed common stomach worms, and slightly larger doses also removed medium stomach worms and small intestinal worms. This is the first instance of efficient anthelmintic action against the last-named parasite.
20. Halogeton poisoning in sheep studied. Feeding trials using pregnant ewes throughout the gestation period, showed that sub-lethal doses of halogeton glomeratus failed to produce abortions, but kidney damage occurred in all animals to such a degree that it would cause large economic losses in decreased wool production, loss of body weight, and decreased milk for nursing lambs. Kidney impairment was not corrected when feeding halogeton ceased. In all cases there was a gradual decrease in red blood cell volume, though blood calcium remained normal. Steamed bone meal, defluorinated rock phosphate, and dicalcium phosphate, fed at less than 1 gram per pound body weight, together with a lethal dose of halogeton, showed that dicalcium phosphate prevented any symptoms of poisoning, defluorinated rock phosphate markedly reduced symptoms, but steamed bone meal hastened death.
21. Filarial dermatosis of sheep cured by a new antiparasitic drug. This unsightly verminous skin disease of sheep which occurs in the mountains of the West, was cured in 4 sheep by use of piperazine. The piperazine treatment is given in the drinking water over a period of 3 days. The best previously proven treatment involved a course of 8 daily intramuscular injections of tartar emetic. Filarial dermatosis, locally called "sore head", was first described by a Department worker in 1938, who also developed knowledge of its cause, distribution, and treatment.
22. Sheep head grubs treated successfully with Trolone. For treatment of infestations of head grubs, which affect sheep everywhere, the use of Trolone has proved a safe, efficient, and simple medication. This organic phosphorus compound was almost 100 percent effective in destroying the first-stage larvae of the parasites. It showed a net efficiency of 88 percent against all stages when administered as a drench. Efficacy against later parasitic stages was materially greater at increased dosage. The only efficient treatment heretofore available consisted of the intranasal instillation of saponated cresol (Lysol), a treatment developed by Department workers in 1940. Treatment with Trolone is altogether better from standpoints of safety, efficiency, and simplicity than with saponated cresol.
23. Atrophic rhinitis studies continued. Transmission studies of atrophic rhinitis have shown that during the summer months, infection does not remain in lots contaminated with this disease. Susceptible pigs 2 to 6 months of age, placed on contaminated pasture lots 28 days after infected swine had been removed, failed to develop the disease within 113 days.

24. New antibiotic proves effective in control of large roundworms and whipworms in swine. The medicated feed containing 20 to 40 grams of the new antibiotic hydromycin per ton of feed was fed for 5 weeks. It exhibited considerable efficacy against large roundworms and whipworms and caused no disturbance to the animals. In other trials, aureomycin, a common additive to growing rations, showed no action. This is the most promising finding so far recorded of an antibiotic action against worm parasitism in any class of livestock.
25. Emulsified (water-in-oil) vaccine developed for immunization of chickens against fowl cholera. This vaccine has protected approximately 80 percent of chickens on test against experimental infection for a 6-month period.
26. New method of control of blackhead in turkeys appears promising. Turkeys given rectally an immunizing infection of a harmless type of the blackhead parasite developed an immunity, which enabled most of these birds to resist a severe challenging infection of the injurious type of blackhead organism. Infections did not develop in about half of the immunized birds challenged 3 weeks after immunization, and in none of those challenged after 6 weeks. Immunization of turkeys to blackhead with a harmless type of the parasite offers promise of an improved method of controlling this disease.
27. Comparison made of effects of trichomonads and coccidia on young turkeys. Young birds affected at the same time with both of these microscopic parasites of the intestine, suffered severely from diarrhea, loss of appetite, and arrested growth. The birds which acquired heavy infections of trichomonads, along with moderate infections of coccidia, became sick, and about half of them died. Apparently trichomonads alone are not very harmful to turkeys. Coccidia can do serious harm when present in large numbers. In the cases under study, the coccidial infections were so light that less than 1 percent of the birds were affected, and these not too severely. Apparently the combination of the two parasites produces a more severe effect than either one by itself.
28. Additional laboratory test provided for vesicular diseases. Methods have been developed for growth and propagation of kidney tissue cells in sheet form on glass surfaces. Kidney cells of guinea pigs, swine, and cattle have been adapted to these methods of culture. This provides a means for extensive studies using genetically similar animal tissue cells with a savings in numbers of animals used. The virus of vesicular stomatitis has been adapted to outgrowths of such tissue cultures of these species, and methods have been developed for propagating this virus in suspensions of kidney cells of cattle, swine, and guinea pigs. As a result of the development of these tissue cell and virus propagation methods, it is possible to conduct serum neutralization tests using serum from vesicular stomatitis infected or recovered animals, thus providing another laboratory test for use in differential diagnostic tests for vesicular diseases.

29. Virus of foot-and-mouth disease purified and photographed. The virus of foot-and-mouth disease has recently been purified, isolated, and photographed. Electron micrographs of the virus reveal that it is spherical in shape, and about 1 millionth of an inch in diameter. This is the smallest of any of the viruses affecting animals. These new findings regarding the physical make-up of the virus are expected to speed research on foot-and-mouth disease through better understanding of its chemical and physical properties. This disease has great economic importance to livestock production throughout most of the world.

Crops Research

30. Breeding for resistance to spotted alfalfa aphid progresses. Rapid progress has been made in developing spotted alfalfa aphid-resistant varieties for those regions where the resistant Lahontan is unadapted. The most promising experimental combination to come out of this work in 1956 is a vigorous, quick recovering alfalfa designed for southwestern United States, an area where the spotted alfalfa aphid has caused serious damage since 1954. Seed of this alfalfa was increased during the winter to facilitate wide-scale testing and was further increased in crop year 1957. Tests to date of this alfalfa show it to be equal to the variety Lahontan in spotted alfalfa aphid resistance, and to be equal to the variety African in forage yield in the Southwest. Work on resistant varieties for other areas is continuing with the hope of meeting at an early date the needs of the 30-State area where this pest caused an estimated damage to alfalfa in excess of \$40 million in 1956.
31. New dwarf castorbean released. Dawn, the first dwarf castorbean variety, was released by the Department and the Texas Agricultural Experiment Station in April 1957. In addition to satisfactory yields that have ranged from 2,000 to 2,700 pounds per acre under good growing conditions, the dwarf growth habit of Dawn adds substantially to ease of cultivation, ease and speed of harvesting, and reduces the losses encountered in harvesting taller varieties. Using the Department's new harvester-huller, harvesting losses with Dawn averaged less than 5 percent in 1956. The favorable results obtained with dwarf varieties in the High Plains of Texas indicated that they have excellent potentialities in other areas when adapted disease-resistant varieties could be developed.

32. Results obtained in development of high amylose corn. Cornstarch with 80 to 90 percent of amylose would have a potentially large market - many millions of bushels a year - for industrial and special uses. These include the manufacture of films, fibers, and special coatings of various kinds. Normal cornstarch has only about 28 percent amylose but several genes have been found in corn that individually increase amylose content from 37 to 60 percent. In cooperative work at the University of Missouri, two of these genes were combined to produce corn that carried 80 percent amylose. With these highly promising results an intensive search for additional high amylose genes is planned.
33. Plant growth stimulated by gibberellic acid. Gibberellic acid has markedly stimulated the rate of growth of over 50 kinds of economic plants of various genera and species. The compound was effective when applied to the stems, leaves, or roots of plants as an aqueous dip, soak, or spray at widely varying concentrations of 0.001 to 1000 p.p.m. (parts per million). It was also effective when applied as a localized stem treatment in lanolin paste mixture of 0.01 to 1.0 percent concentration.

Most of the treated plants became larger and heavier than comparable untreated ones. In the case of Pinto beans and soybeans used in greenhouse experiments, the increases in fresh and dry weight due to treatment amounted to 20 to 35 percent. Field-grown celery plants sprayed once during September with a 0.05 percent concentration of the acid became 10 percent heavier in dry weight and the stalks were 3 times as long and thick as unsprayed ones. Judging by the degree of frost damage late in the season, the treated celery plants were more succulent, and thus were more severely damaged by prevailing low temperatures than were the untreated ones.

Similar increases in overall growth due to treatment were recorded for certain shade or forest trees, such as willow oak, tulip poplar, red maple, and loblolly pine. Ornamental plants such as dahlia, geranium, and petunia, as well as agronomic or vegetable crop plants such as bean, sunflower, tobacco, pepper, cabbage, and Brussels sprouts, were induced to develop taller and heavier above-ground parts.

34. Two new potential flue-cured tobacco varieties evaluated. Two advanced flue-cured tobacco breeding lines, developed in the cooperative program in South Carolina and designated as P. D. 83 and P. D. 97, are currently being evaluated in regional variety tests throughout the flue-cured tobacco producing area. Both of these lines carry high resistance to black shank and moderate resistance to Granville wilt diseases. Preliminary information indicates that these lines are moderate in yielding ability, but possess quality characteristics equal to and generally better than black shank resistant flue-cured varieties now available. On the basis of physical and chemical characteristics of cured leaf samples, both of these lines appear promising as potential new varieties.

35. First single-cross hybrid grass released. Tifhi-1 bahiagrass developed in cooperative work in Georgia represents the first attempt to introduce a single-cross hybrid forage grass into commercial channels. Tifhi-1 is a cross between Pensacola bahiagrass clones 14 and 108. Hybrid seed is produced by planting the two self-sterile clones vegetatively in alternate strips. Clone 108, which is superior in shattering resistance to regular Pensacola and clone 14, should be grown in 30 foot strips alternated with 10 to 15 foot strips of clone 14. In a 4-year grazing study at Tifton, Georgia, Tifhi-1 bahiagrass produced an average of 69.6 pounds more gain in live animal weight per acre per year than the Pensacola check. Test steers grazing these two grasses made essentially the same daily gains, indicating that they were similar in quality.
36. Cottonseed bred for low gossypol content. Cottonseed contains a pigment, gossypol, which because of its toxicity limits the usefulness of cottonseed meal as animal feed. This pigment is present in small glands. At Shafter, Calif., and Raleigh, N. C., breeding work is aimed at reducing numbers of these glands.

Using wild cottons with reduced number of pigment glands, it has been possible to recover segregates having low gossypol in crosses and through intensive selection to effect their complete elimination. The relation between low gossypol and yield is now being studied in crosses with commercial varieties. A number of lines with different percentages of gossypol are being stabilized and used in tests with animals to determine toxic levels.

37. Plant introductions aid development of superior crop varieties. A new sorgo variety, named Wiley, has been released for the Southeast. It has resistance to most of the leaf and stalk diseases prevalent there, unusually fine quality sirup, and late maturity. Under disease conditions it produces from 15-25 percent more sirup and feed than other commercial varieties. Wiley was produced from a three-way cross, two parents of which were obtained from Africa as plant introductions. Much of the disease resistance and vigor of Wiley is attributable to the African strains.

The introduction of a wild spinach strain collected in Iran by a Department plant explorer in 1940 played a major role in attaining high resistance to downy mildew (blue mold) in a newly released variety, Califlay. The new spinach was developed by the California Agricultural Experiment Station from a cross involving the commercial variety Viroflay and the strain from Iran.

As a basis for future progress, 13,133 collections of seed or other living plant material were introduced from abroad in the past year for cultural screening for possible use in crop production programs. Heavy emphasis continues on better forage and range materials and more than one-third of the material obtained was in this category. Approximately 1,000 collections of plant material were made for chemical composition studies in utilization research. Through cooperation with Longwood Gardens of Pennsylvania, extensive series of new ornamentals were procured in Japan and Europe. Main emphasis was on broad-leaved evergreens.

38. International small grain nurseries help combat rust in the United States. Frequent occurrence of new and virulent races of rusts of small grains throughout the world emphasizes the necessity for locating sources of resistance prior to the establishment of these races in the United States. The International Rust Nursery program, with cooperating nurseries in 26 foreign countries, has expedited efforts to solve these potentially acute problems. Already, sources of resistance to highly virulent strains of the crown rust of oats, which occur in Brazil and Argentina, have been identified. These sources of resistance were used immediately in breeding programs and are now incorporated in early generation hybrids. This is fortunate since races of crown rust similar to those in South America are appearing this year in the commercial oat fields in the United States.

In the case of wheat stem rust, about 50 sources of resistance to the highly virulent race 189, common in Peru, have been found through the International Rust Nursery testing project. Some of the sources of resistance to this race have been incorporated in such spring wheats as Conley from North Dakota, and several unnamed selections of crosses made in Minnesota.

In 1956 a highly virulent race of leaf rust of wheat appeared in Spain, but lines of wheat resistant to it were found in the International Rust Nursery. Some of these lines were already being used in breeding winter wheat. The progeny of such crosses are being included in current nurseries in Spain to check their resistance.

39. Chemical fruit thinning improved. Research at Beltsville, Maryland, has shown that when the liquid detergent Tween 20 is added to NAA (naphthaleneacetic acid), its effectiveness as a fruit thinning spray is greatly increased. Five p.p.m. (parts per million) of NAA with Tween 20 (1 part of detergent to 800 parts of water) has proved as effective in fruit thinning as 20 p.p.m. without Tween 20 and results in less injury to the foliage. The Tween 20 greatly enhances penetration of NAA into the foliage. Penetration is greater in leaves that have been exposed to temperatures of freezing or slightly below than in leaves not exposed to such temperatures, so that concentrations for fruit thinning should be reduced when even light frosts have occurred prior to time of application. These findings eliminate much of the guesswork in this method of fruit thinning.

40. New vegetables and fruits released. A new potato, Tawa, derived from a cross between two seedlings, has been released jointly by the Department and the agricultural experiment stations of Iowa and Michigan. Tawa is an early white variety with smooth tubers. It is immune from latent mosaic and has resistance to scab, late blight, and mild mosaic. In the North Central States, Tawa is comparable to Irish Cobbler and should be valuable to growers in this region, where those diseases are serious problems.

A new pink-fruited tomato, Pinkshipper, highly resistant to fusarium wilt has been developed and released to seedsmen for increase. The new variety produces a heavy yield of smooth, globular fruit and has received much favorable comment on its performance in cooperative trials in the South. It has been widely tested and should be especially valuable in regions where fusarium wilt is prevalent and pink tomatoes are desired for field or greenhouse culture.

Blackstone, a new disease-resistant, large, round watermelon has been developed and released by the Department's laboratory at Charleston, S.C. It affords much-needed resistance to anthracnose and a useful degree of tolerance to fusarium wilt in this very popular Black Diamond type of watermelon. Blackstone is dark green, relatively free of hollow heart and white heart, of high quality, and has a hard rind; it stands long distance shipping well.

Three new strawberry varieties and one blackberry variety have been developed and released to nurseries during the past year. Two of the strawberry varieties were developed at Beltsville, Md. Earlidawn is extra early, frost resistant, large fruited, and brightly colored. Redglow is an early variety resistant to red stele root rot. Surecrop, developed in cooperation with the Maryland Agricultural Experiment Station, is a late variety, also resistant to red stele root rot. The Marion blackberry, developed in cooperation with the Oregon State Agricultural Experiment Station, is a large fruited, very high quality, mid-summer variety, particularly well adapted to freezing.

41. Pelleted range grass seed fails to improve stands. Cooperative research on Bureau of Land Management and Indian lands in eastern Idaho has conclusively demonstrated no advantage from the use of coated pellets of crested wheatgrass in establishing grass on arid rangelands. Almost identical results were obtained from all broadcast seedings, whether by hand or airplane, with pelleted or natural seeds. Applied at a rate of 6 pounds of seed per acre, these broadcast methods averaged 0.3 seedlings per square foot. Drilling of unpelleted seeds averaged 4.5 seedlings per square foot.

42. New herbicides tested. The herbicide 2,3,6-TBA (2,3,6-trichlorobenzoic acid) has given outstanding control of field bindweed in Kansas and shows more promise for control of this weed than any other material ever tested in that area. 2,3,6-TBA has also shown good promise for the selective control of weed bromegrasses and wild garlic in Kentucky blue grass sod. Preliminary studies at Beltsville, Md., and cooperative investigations at Columbia, Mo., indicate that another new herbicide, simazin, has much potential as a pre-emergence herbicide for controlling weeds in corn because of the unusually high tolerance of corn to the compound and the apparently low tolerance of annual weeds that occur in corn. These observations on simazin are supported by results of field trials conducted under a wide range of soil and climatic conditions.
43. Control of nematodes reduces cotton production hazard. In the Southeast, cotton is often attacked by sting nematodes. Apparently damage caused by the nematodes makes the cotton more vulnerable to damage by the fungus which causes cotton wilt. A combination of the two may destroy a large part of the crop in a field. In one Georgia field, where sting nematodes and cotton wilt were prevalent, less than 100 lbs. of lint cotton per acre were produced. When the nematodes were controlled by soil fumigation at a cost of about \$15 per acre, the crop was more than 600 lbs. of lint cotton per acre. In the Southwest, cotton planted in fields infested by root-knot nematodes may be subject to post-emergence damping-off with a considerable proportion of the seedling plants being killed. In a field in Arizona, control of the root-knot nematodes at a cost of about \$20 per acre resulted in survival of more seedlings and an increase of more than \$200 per acre for the value of the crop.
44. Facilities developed at the National Arboretum. Considerable advance has been made in improvement of physical facilities at the National Arboretum, Washington, D.C. With the exception of 2 service roads, all remaining parts of the 8-1/2 mile road system, developed by the Bureau of Public Roads, have now been completed to the surfacing stage, including construction of the main entrance parking area and grading and seeding of road banks. Black-top surfacing has been completed on 2 miles of roads near Mt. Hamilton. Current contracts provide for surface paving of a major part of the new construction together with completion of 2 additional box culverts over Hickey Creek. In addition, a new brick service building has been erected as a replacement for the old structures near the main entrance, and 2 brick comfort stations have been constructed, 1 near the main parking area and 1 near the display plantings on the northeast side of the Arboretum.

Plant collections for research projects, including plant breeding, testing, evaluation, and public educational displays, were increased by approximately 1,000 accessions. Notable among these were 118 species, varieties and forms of *Viburnum*, 12 species of *Eucalyptus* from the coldest region of Tasmania, and 141 selections of cold-hardy boxwood from the Balkans. Newly developed plantings include the addition of 1,600 plants of azaleas in 700 varieties and 600 camellias in 171 varieties for cold-hardiness testing in the display area.

Entomology Research

45. Progress made in basic research on the boll weevil. A semi-synthetic diet on which the boll weevil can be reared under laboratory conditions has been found. This will insure a continuous supply of weevils of known age and lineage for large-scale experimental use, and permit the determination of this insect's exact nutritional requirements. Raising boll weevils on a controlled semi-synthetic diet opens up several promising research leads, such as: (1) a basis for breeding a variety of cotton that does not satisfy the nutritional requirements of the insect; (2) feeding something into the cotton plant that will prevent the normal development of the boll weevil and other insects feeding on it; and (3) development of attractants that may be extremely useful in control. It may also reveal some physiological weakness that can be useful in developing new and more effective control measures. This is the first instance of a plant-feeding weevil being reared on a synthetic diet under laboratory conditions.
46. Diseases of insect pests offer promise as biological control agents. A disease capable of killing a wide range of host insects has been isolated from codling moth larvae obtained from an abandoned orchard where there was 80 percent control of this important insect pest. The disease is caused by a bacterium and a nematode working in a symbiotic relationship. The nematode carries and inoculates its insect host with the bacterium which kills and preserves the host for the nematode. This disease presents no threat of damage to crops or livestock. A number of important pests including the pink bollworm, boll weevil, corn earworm, tobacco budworm, and the asparagus beetle, have been found susceptible to the disease.

Several species of parasitic fungi have demonstrated their ability to control the spotted alfalfa aphid in natural disease outbreaks.. A lag of several years has occurred between the first appearance of the spotted alfalfa aphid in a new area and the appearance of these parasitic fungi. An effort is being made to devise a means of establishing the fungi in areas newly infested by the aphid.

Preliminary studies indicate that a bacterium, Bacillus thuringiensis, is effective against hornworms on tobacco. This bacillus is also virulent against a number of other insect pests and preliminary laboratory and field tests have given promising results against a number of them.

47. Explorations conducted for natural enemies of halogeton. Preliminary explorations have been carried out in Spain, North Africa, and the Middle and Far East for insects and plant pathogens affecting halogeton (Halogeton glomeratus Mey) and related plants. About 100 species of insects were found associated with some 20 species of plants of the suborder Salsoleae, to which halogeton belongs. Of these, 20 to 30 species are considered to have promise as possible biological control agents. All will be carefully studied, and some are being tested now to determine their effect on halogeton, and whether they will attack crop plants.
48. Screw-worm pilot test completed. A pilot test to evaluate and improve procedures that can be used to eradicate screw-worms by the release of sterile male flies was completed in Florida during the summer of 1957. Facilities were provided for rearing 2 million flies per week. In this test flies ~~made sexually~~ sterile by exposure to radio-active cobalt were released systematically over a 2,000 square-mile area by airplane, at a rate of 500 flies per square mile per week. The sterile males mated with native females and the resulting egg masses did not hatch. After 4 months of releases 40 to 70 percent of the eggs in the treated area were infertile. Complete elimination could not be demonstrated because of migration of fertile females from surrounding untreated areas but details of operational procedures to be followed in an eradication program were further developed.
49. Advances made in systemic insecticides for cattle grubs. The systemic insecticide ET-57, also known as Trolene, shows exceptional promise for the control of cattle grubs after wide-scale evaluation by State, Federal and industry workers during the past 2 years. This material is given orally to cattle and destroys the grubs before they appear in the back. The Department has accepted the compound as being non-hazardous when used as directed. Research has also demonstrated at least 2 other promising systemic insecticides. One of these, Bayer 21/199, is effective as a systemic when applied as an external spray during the late summer and early fall before the grubs appear in the back. The insecticide is absorbed through the skin in small amounts and destroys the young grubs in the body of the animal. The other systemic compound, known as Am. Cyanamid 12880, has shown considerable promise in preliminary tests for control of the cattle grubs as well as other livestock insects.

50. Insecticide residue studies provide more practical insect control measures for vegetables. Intensive studies in 1956 on the deterioration of malathion residues on vegetables showed that it is practical to apply this insecticide to some crops between commercial pickings. For example, as a result of these studies, growers can now apply malathion to squash and cucumbers up to 1 day before harvest. Previously, it was necessary to recommend they not treat within 3 days of harvest, even though in commercial practice it is often desirable to pick these crops every 2 days. In 1957, emphasis was placed on the determination of residues of methoxychlor on about 25 vegetables and berries. Of the many insecticides that need to be included in this study, malathion and methoxychlor were selected for primary emphasis because of their relative safety and their general effectiveness against a wide variety of crop pests.
51. Honey bee proves of value in tests to detect insecticide residues in food products. The sensitivity of the honey bee to a wide range of insecticides makes it possible to capitalize on the micro-injection technique recently developed to detect insecticide poisoning in insects, and to detect insecticide residues in various food products. The technique consists of injecting into the abdomen of the bee a solution of the material suspected of containing an insecticide; and similarly injecting bees with an acetone-water solution as checks. The honey bee is tolerant to injections of unadulterated peanut oil and of unadulterated animal fat. However, when injected with animal fat containing insecticide residue, that was dissolved in peanut oil, bees have quickly succumbed. A bioassay made by using bees is inexpensive, results are quickly obtained, and are fairly uniform.
52. Data on mosquitoes of medical importance being published. A comprehensive treatise on the mosquitoes of medical importance is being published as a Department handbook. This volume consists of 67 pictorial keys designed to permit identification of medically important species of mosquitoes occurring in various parts of the world; a summary of the important mosquito-borne diseases of man; and discussions of geographic and climatic factors that influence the abundance of mosquitoes. Also included is a discussion of common pest mosquitoes in the various regions of the world.

Soil and Water Conservation Research

53. Method developed for determining field erosion losses. Storm energy times maximum 30-minute intensity has been identified as the rainfall characteristic responsible for a very high percentage of soil loss from individual storms. Use of this new method will reduce the time for practice and factor evaluation to a 2 to 4 year period instead of 10 to 20 years required with natural rainfall. Identification of this rainfall characteristic is the first step in determining the erosion potential of different climatic areas. It provides greatly increased accuracy of the erosion equation which is the basis for the slope-practice method of scientifically applying conservation measures to farm fields, and for estimating sediment production from upstream areas in watershed protection programs. Further refinement of the erosion equation can be made now by providing accurate evaluations of soil management practices and soil erodibility factors through use of a recently developed field-plot-size rainfall simulator.
54. Nitrogen isotopes enable scientists to detect small quantities of biologically-fixed nitrogen. The fixation by soil organisms of atmospheric nitrogen into forms which plants can utilize is of great importance in agriculture. Research on the nature of biological fixation of nitrogen in soils has been handicapped by difficulty in measuring the fixed nitrogen. Department scientists have now worked out techniques, using a stable isotope of nitrogen ($1/14$ heavier than ordinary nitrogen) which permits them to measure accurately the fixation of less than 1 pound of nitrogen per acre. Development of this technique will permit comparison of different nitrogen-fixing organisms and the effects of different soil treatments on the rate of nitrogen fixation. Data from such comparisons will form the basis for methods of increasing biological nitrogen fixation in field soils.
55. Lysimeters account for water utilization and streamflow. Lysimeters used in hydrologic studies at Coshocton, Ohio, are giving much information on soil and water relations, surface runoff and percolation through the soil. Results show that of Ohio's average 38 inches of rainfall 13 inches go as surface runoff or soil percolation into the streamflow; 25 inches go into the air by evapo-transpiration from soil and plants. In 1953 when only 29 inches of rain occurred, only 4 inches of water remained for the stream after evapo-transpiration from soil and plants. Accounting for the disposition of precipitation is of value in understanding the hydrologic cycle and in the planning of watershed development.
- Each lysimeter comprises a 65-ton monolith of earth resting on a giant scale. Its surface area is $1/500$ acre representing conditions in the surrounding field area. Year in and year out the weight of this earth block is automatically recorded every 10 minutes. Variations as little as 0.01 inch of water are shown. The scale is tipped to the plus side by the evening dew, to the minus side by evapo-transpiration from ground and foliage and by percolation through a 8-foot depth of soil.
56. Method developed for removing bacteriological deposits from drainage tile lines. Studies in the Imperial Valley, California, have resulted in the development of an effective technique for removing bacteriological deposits from drainage tile lines. Two types of deposits - one black in color and the other reddish, resembling

iron rust - have accumulated in the joints and within the tile drains and have seriously reduced both the rate of water inflow and the carrying capacity of tile drains. Research showed that the deposits resulted from microbiological activity, the black material being composed mainly of manganese dioxide and the red material being mainly iron oxide. Efforts to remove the deposits by scraping with wire brushes proved ineffective, but a combination of chemicals has been found to dissolve the foreign deposits. A technique has been worked out for chemically treating the tile drains on a field scale with a solution of 2 percent sodium bisulfite and 5 percent sulphuric acid. This readily dissolves the material from the tile lines. Costs for chemicals is from \$3 to \$5 per acre for an average tile drain installation. Studies are in progress to evaluate the permanence of this treatment and to investigate other methods whereby the cost for improvement may be reduced.

57. Research provides better understanding of the mechanism of nutrient uptake by plants. Recent work at Beltsville, Maryland, has led to new understanding of the process through which plants take in mineral nutrients. The concentration of nutrients within the plant root cell is usually higher than in the soil solution outside the plant root. In order for this difference in concentration to exist, some "pumping system" operates in the root cells. During the past year research workers at Beltsville have made discoveries leading to a much better understanding of the nature of this "pumping system." The energy required to keep the system operating comes from the breakdown of enzymes of organic compounds during the respiration process. The knowledge gained from this research has already provided a better understanding of important processes in soil fertility and plant growth, and may also provide a basis for more rapid and accurate evaluation of plant materials in plant breeding programs.
58. Low cost drains under development. At Ithaca, N. Y., initial field tests were undertaken with a modified mole-plow that will form a conventional mole drain and at the same time install a horseshoe-shaped plastic liner. The purpose of the liner is to prevent sediment and topsoil from blocking the channel. Initial trials show that partially lined channels of this type can be constructed at a rate of about 1 mile per hour and at a cost of approximately \$0.08 per foot. This is about one-third the cost of a conventional tile installation. Work is being continued on both screening plastic and metal materials for lining and development of a method for forming a complete perforated tube to give protection to the channel floor. This will form the basis for extensive field testing with the lined drains.
59. Hydraulic properties of crop vegetation in channels and on flood-plain lands evaluated. At the Stillwater, Okla. Outdoor Hydraulic Laboratory tests have been run during the past year on various crop vegetations to determine their protective and retardance qualities. In general terms the findings indicated that: (1) for those flows which submerged the vegetation, the retardance factor

is related to the height of the crop with only a slight effect associated with row or planting direction; (2) for shallow flows the spacing and row direction are major factors with respect to flow retardance; (3) Bermuda and Reeds Canary grass have been found to withstand prolonged flows without damage, and in fact seemed to benefit from prolonged wettings. This indicates that they are very well adapted as protective measures in channels where prolonged wet conditions are encountered. Methods have been developed to facilitate the hydraulic design of various vegetated channels used for water conveyance. The information enables calculation of the carrying capacity of terrace channels in different crops, the design of reservoir spillways where vegetation is used for stabilization purposes, and is also applicable in computing the flow of water for situations encountered on irrigated fields and on floodplain lands.

60. Solubility in water influences efficiency of fertilizer phosphorus. Current practices in the manufacture of mixed fertilizers are tending to lower the proportion of the phosphorus that is soluble in water and to increase markedly the particle size of the products. As shown by greenhouse and field studies, the yield response of fast-growing crops to fertilizer applications often is influenced significantly by the solubility of the phosphorus in relation to the particle size of the fertilizer. Fertilizers that combine low solubility with large particle size show poor response. It was found that the adverse effect of this interrelationship is lessened when readily soluble salts of nitrogen or potassium are included with the phosphate in the fertilizer granule. The factors contributing to the maintenance of high levels of water-soluble phosphorus in mixed fertilizers were also determined.
61. Built-up asphalt lining developed. A built-up asphalt lining has been developed to reduce water seepage from exposed irrigation ditches. The ditch invert, including the trenches used to anchor the lining on the banks of the ditch, is sprayed with hot asphalt at 375-400° F. at a rate of about 0.75 gsy (gallons per square yard).. Jute is laid on the warm asphalt and a second application of asphalt is sprayed on the jute. A second layer of jute is then applied, with a final top coat of sprayed asphalt. Total asphalt application is about 2.0 gsy with two layers of jute and 1.5 gsy with one layer. These linings have been tested in Arizona under hot weather and in Utah under freezing weather conditions. They have shown good durability over a 2-year period and are less expensive to install than the plank type or thick prefabricated asphalt linings. The materials, labor and installation costs at Roll, Ariz. were 72 cents per square yard for the 2-ply lining and 48 cents per square yard for the one-ply lining.
62. Cellular concrete block used for streambank revetment. A new type of revetment material for use in stabilizing eroding streambanks was developed and subjected to field testing on Buffalo Creek in New York State. Precast cellular concrete blocks 4" x 16" x 24" are being studied as an alternative to stone rip-rap now extensively

used as a streambank protective measure. Performance of this type revetment as a trial installation compares quite favorably with adjacent reaches of stone revetment when subjected to high water velocities and the impacts and abrasion of a heavy ice floe following a winter storm. Additional installations are being projected to record the performance under a wider range of channel geometry and flow conditions. This development is one outgrowth of continuing research to extend the knowledge of erosive forces in natural stream channels and devise new and improved methods for reducing channel migration and losses due to bank erosion. Indications are that the cellular blocks may have distinct advantages over the more conventional revetment types.

Farm Economics Research

63. Income changes from 1955 to 1956 vary widely among types of farms. Although the general level of net income per farm for farms of all types and sizes averaged nearly 7 percent higher in 1956 than in 1955, returns varied considerably by type, size, and location of farm. Net returns in 1956 were higher than in 1955 for 16 of 29 types of commercial farms; about the same on 3; and lower on 10 (table 1). Corn Belt farms were the only major type group on which changes in income from 1955 to 1956 were all in the same direction. These farms all showed increases in 1956. Net returns by type of farm ranged from a high of about \$21,060 per farm for large-scale cotton farms in the Mississippi Delta to a loss of \$1,250 on Southwest cattle ranches (fig. 1).

Changes in net returns from year to year are largely the result of changes in crop yields and prices. Over the long run changes in size of farm and production efficiency are important factors (fig. 2). All of the farm types which had increases in net returns from 1955 to 1956, except sheep ranches in the Northern Plains and cattle ranches in the Intermountain region, had increases in crop yields. Prices received for products sold increased from 1955 to 1956 on all but 4 of the types of farms which showed increases in net returns.

Total inputs (a measure of size) have increased since 1937-41 on all farms for which data are available back to the early 1930's. This has occurred even though the amount of labor used per farm generally has declined. Production per hour of labor is now well above the 1937-41 average on all 29 types of farms. Man labor has been replaced in many instances by mechanical labor saving devices, particularly on crop farms. Total production per unit of input is now well above the 1937-41 level on all the types of farms studied. Production per unit of input in 1956 was higher than in 1947-49 on 17 of the 29 types of farms studied.

Tentative estimates of prospective net returns for 4 types of farms for 1957 indicate the following changes in net returns per farm from 1956 to 1957: Northeast dairy farms up 20 percent,

TABLE I

Net farm income, commercial farms by type, size
and location, 1956, with comparisons

Type of farm and location	Average		1953	1954	1955	1956 1/
	1937-41	1947-49				
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Dairy farms:						
Central Northeast.....	960	3,892	3,493	3,735	4,248	4,248
Eastern Wisconsin.....	1,480	4,365	3,760	3,219	2,816	3,365
Western Wisconsin.....	1,236	3,284	3,159	2,382	2,434	3,005
Corn Belt farms:						
Hog-dairy	1,642	5,639	6,027	6,379	4,372	5,092
Hog-beef raising.....	928	3,370	3,357	2,945	3,016	3,333
Hog-beef fattening.....	2,520	10,665	7,055	8,833	4,433	6,898
Cash-grain.....	2,627	8,930	7,471	8,393	6,516	9,141
Tobacco farms:						
Tobacco-livestock (Ky).....	1,192	3,334	3,457	3,439	2,850	3,200
Tobacco-cotton (N.C.)...	2/	3,208	3,240	2,927	3,550	3,469
Small tobacco.....	2/	2,354	2,611	2,380	2,885	2,826
Large tobacco-cotton..	2/	3,923	4,042	3,326	4,463	4,636
Cotton farms:						
Southern Piedmont.....	495	1,565	1,918	1,438	2,297	1,708
Black Prairie, Texas...	1,019	3,090	3,491	1,724	2,502	974
High Plains, Tex. (Non - irrigated).....	1,675	6,411	-640	4,637	2,755	3,326
High Plains, Tex. (irri- gated).....	2/	10,761	8,448	13,205	7,243	12,736
Delta:						
Small	2/	1,923	2,073	1,581	2,033	1,660
Large-scale.....	2/	20,465	24,668	16,943	25,807	21,059
Peanut-cotton farms, Southern Coastal Plains	2/	2,313	2,660	2,231	3,196	3,121
Spring wheat farms (Northern Plains):						
Wheat-small grain-live- stock	872	6,323	4,075	2,133	6,052	6,992
Wheat-corn-livestock...	1,127	5,972	4,201	3,397	2,547	3,356
Wheat-roughage-livestock	533	5,370	4,512	2,813	4,259	3,122
Winter wheat farms:						
Wheat, Southern Plains.	1,174	10,017	4,961	7,240	4,914	3,252
Wheat-grain sorghum, Southern Plains	1,092	9,433	1,083	3,314	1,647	2,349
Wheat-pea (Wash. & Idaho)	2,764	11,864	14,705	16,048	9,989	13,895
Northern Plains:						
Sheep	2,734	6,908	5,287	4,299	4,367	5,696
Cattle	980	6,466	4,216	3,625	2,839	1,926
Cattle ranches, Inter- mountain region.....	2,892	8,665	5,324	4,481	4,626	5,720
Southwest:						
Sheep	2/	5,224	772	955	3,303	693
Cattle	2/	5,698	-490	323	3,121	-1,245

1/ Preliminary

2/ Not available

NET FARM INCOME, 1956

\$(THOUS.) PER FARM

TYPE OF FARM

0

4

8

12

WHEAT-PEA, WASHINGTON-IDAHO
 COTTON, HIGH PLAINS, TEXAS *.....
 CASH GRAIN, CORN BELT
 WHEAT-SMALL GRAIN-LIVESTOCK, N. PLAINS
 HOG-BEEF FATTENING, CORN BELT
 CATTLE RANCHES, INTERMOUNTAIN
 SHEEP RANCHES, N. PLAINS
 HOG-DAIRY, CORN BELT
 DAIRY, CENTRAL NORTHEAST
 TOBACCO-COTTON, N. CAROLINA
 DAIRY, EASTERN WISCONSIN
 WHEAT-CORN-LIVESTOCK, N. PLAINS
 HOG-BEEF RAISING, CORN BELT
 COTTON, HIGH PLAINS, TEXAS Δ
 WINTER WHEAT, S. PLAINS
 TOBACCO-LIVESTOCK, KY.
 WHEAT-ROUGHAGE-LIVESTOCK, N. PLAINS ...
 PEANUT-COTTON, S. COASTAL PLAINS
 DAIRY, WESTERN WISCONSIN
 WHEAT-GRAIN SORGHUM, S. PLAINS
 CATTLE RANCHES, N. PLAINS
 COTTON, SOUTHERN PIEDMONT
 COTTON, BLACK PRAIRIE, TEXAS
 SHEEP RANCHES, SOUTHWEST
 CATTLE RANCHES, SOUTHWEST



* IRRIGATED

Δ NONIRRIGATED

FIGURE 1

NET FARM INCOME 1958

NET FARM INCOME

1958

1958



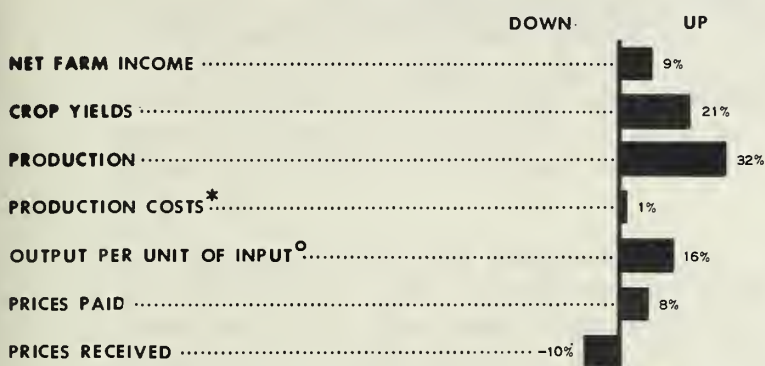
Source: U.S. Department of Agriculture, Economic Research Service

U.S. GOVERNMENT PRINTING OFFICE: 1959

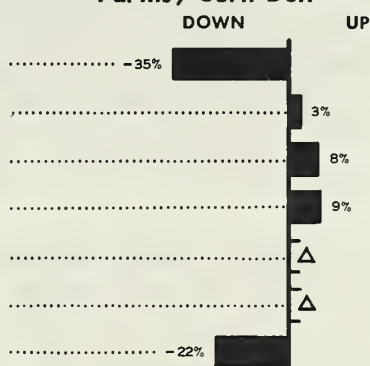
1956 Compared with 1947-49

PRODUCTION, COSTS AND RETURNS

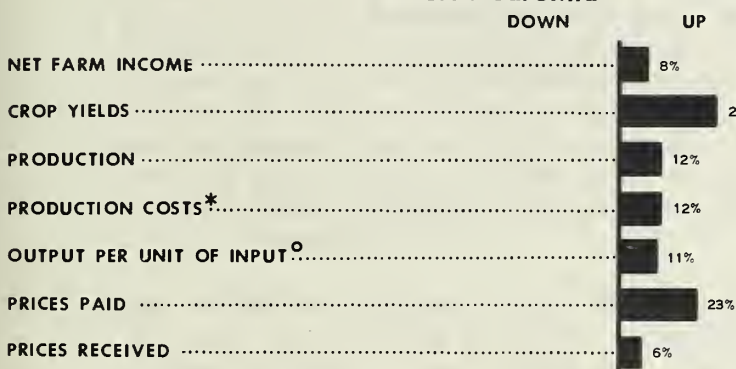
Dairy Farms, Central Northeast



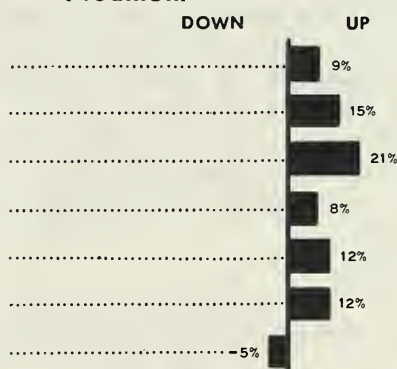
Hog Beef-Fattening Farms, Corn Belt



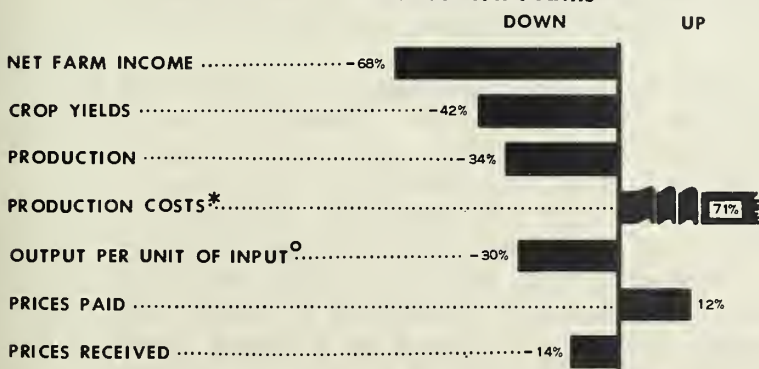
Tobacco-Cotton Farms, North Carolina



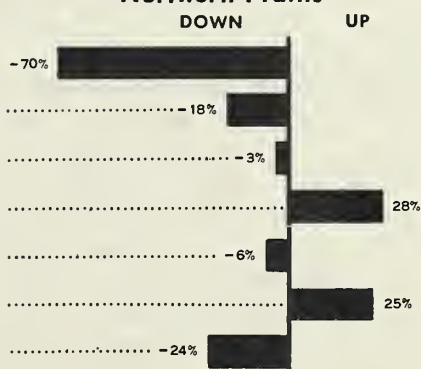
Cotton Farms, Southern Piedmont



Winter Wheat Farms, Southern Plains



Cattle Ranches, Northern Plains



* TOTAL COST PER UNIT OF PRODUCTION

^o AT 1947-49 PRICES

Δ NO CHANGE

FIGURE 2

PRODUCTION, COSTS AND EMISSIONS



hog-dairy farms in the Corn Belt up 22 percent; Piedmont cotton farms down 4 percent; and winter wheat farms in the Southern Plains up 47 percent. Despite the large increase in net returns from 1956 to 1957 on winter wheat farms, average returns are still below the 1947-49 average. They are higher in 1957 than in 1947-49 on the other 3 types of farms.

64. Farm real estate values continued to advance in 1957. The average value of farm real estate per acre advanced 8 percent in the year ended November 1, 1957. About half of the States showed gains of from 5 to 7 percent and 9 States had increases of 10 percent or more. Most of these were in the area extending from Georgia and Florida westward to Texas, and in the Northeast (fig. 3).

The national index for November 1, 1957 was 154 (1947-49=100), 2 percent above July and 20 percent above the recent low in November 1954. The total value of farm real estate as of November 1 was estimated at \$114.5 billion, up \$5.0 billion from March and a new record high.

A generally favorable crop season in 1957 and continued demand on the part of farmers for more land to enlarge their farms were strong factors in the continuing rise in land values in 1957. In some areas, the Conservation Reserve Program served to sustain demand for land of below average quality. In the nonfarm sector, the continued high level of business activity, the slowly rising general price level, and the need for space for an expanding economy added additional strength to market prices of farmland in many communities.

The volume of voluntary sales of farmland declined 3 percent in the year ended March 15, 1957, reversing the slight upward trend of the previous 2 years (fig. 4). The rate for the latest 12 months' period was 31.4 farms per 1,000, only slightly above 1954 which was the lowest since 1940. The number of farm foreclosures was estimated at 9,000, down slightly from the 10,400 estimated for the year ended March 1956.

More buyers of farmland used credit to finance their purchases in the 12 months ended March 1957 than in the previous year. Sales contracts were used more frequently but the proportion financed by mortgages was lower. Sellers, primarily individuals, of farmland were the most important source of credit for the purchase of farm real estate in the year ended March 1, 1956. They provided the credit for 37 percent of all credit-financed purchases of farmland. A substantial part of these purchases were financed by means of purchase contracts, rather than by mortgages. Among those lenders who require mortgages, local banks and insurance companies were of nearly equal importance; they financed 19 and 18 percent, respectively, of all buyers. Federal land banks provided the mortgage funds for 10 percent

of the buyers and the remaining 16 percent were financed by other individuals, unclassified lenders or combinations of 2 or more lenders (fig. 5).

65. Farm debts and taxes continue to climb. Total farm-mortgage debt increased in 1957 for the twelfth consecutive year (fig. 6). On January 1, 1958 it is expected to be \$10.6 billion, about 7 percent above the total of \$9.9 billion on January 1, 1957. The 1958 total of \$10.6 billion is expected to be the highest since 1924, and about 120 percent above the postwar low in 1946. Non-real-estate debt (excluding price support loans made or guaranteed by the Commodity Credit Corporation) rose only to \$8.0 billion on January 1, 1957 from \$7.9 billion a year earlier. Indications are that these debts of farmers will rise slightly to about \$8.1 billion on January 1, 1958. Total farm debts, including price support loans, amounted to \$19.5 billion on January 1, 1957, or 3 percent above the amount a year earlier. They are expected to reach \$19.9 billion by January 1, 1958.

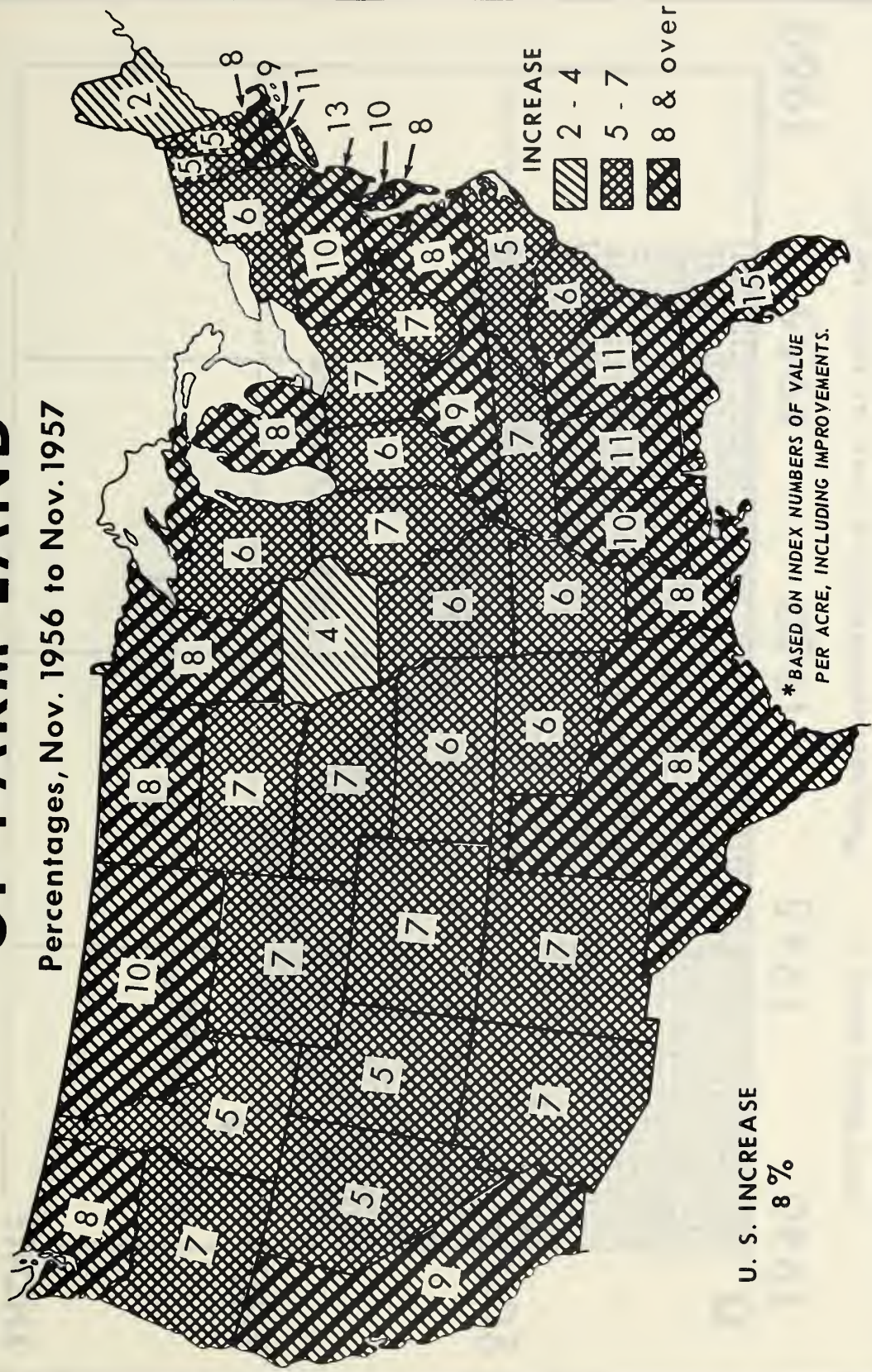
A preliminary survey of 1957 tax levies on farm real estate, payable largely in 1958, shows average taxes per acre to be about 6 percent higher than a year earlier (fig. 7). This is the fifteenth consecutive year of increases. The average tax per acre will reach an all-time high. Compared with the base period (1909-13=100), the index will be about 465. For 1957, taxes levied on farm real estate and personal property will total about \$1,032 million and \$233 million, respectively. The persistent uptrend in farm property levies is an outgrowth of the steadily growing revenue needs of local governments. Increased payrolls and heavy requirements for schools and other capital facilities have contributed to a tripling in local expenditures from 1946 to 1956. Much of this increase has been financed from property taxation. The rise in local expenditures shows no signs of slackening in the near future.

Federal income taxes paid by the farm population on 1957 income will continue at approximately \$1.1 billion, or about the same as in the past several years. This amount is about 75 times the payments made in 1940.

66. Record-equaling farm output in 1957. Farm output in 1957 may equal the record 1956 outturn of farm products. This achievement is due to large outturn of both livestock and crops. Total livestock production in 1957 promises to be the second largest of record, 21 percent above the average 1947-49 production. Dairy products are the only livestock group to attain a new record production in 1957. Both poultry products and meat animals in 1957 may be at near record levels. There was a slight decline in the number of animal breeding units in 1957, but the 1956 record livestock production per animal breeding unit was maintained (fig. 8).

CHANGES IN DOLLAR VALUE OF FARM LAND*

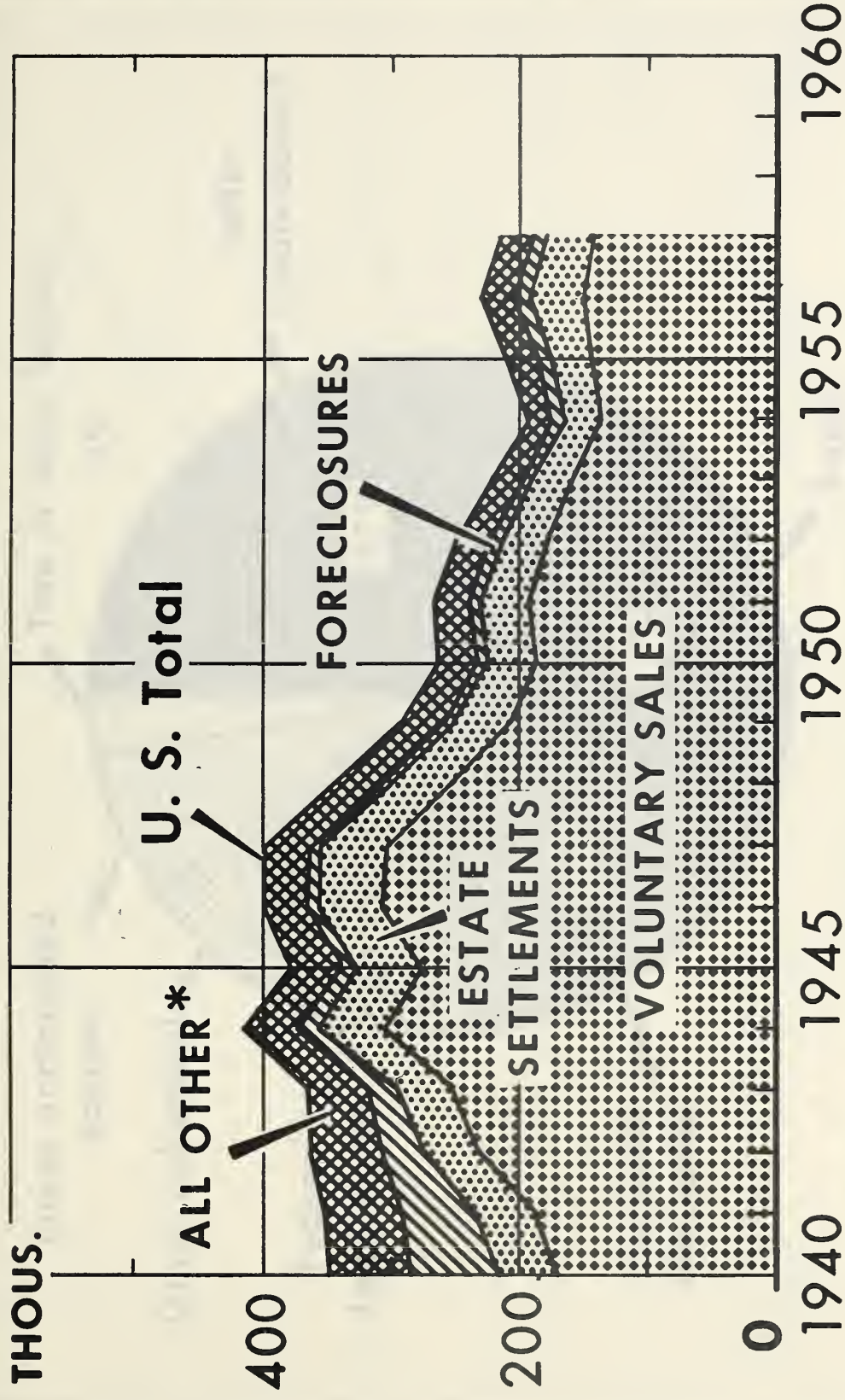
Percentages, Nov. 1956 to Nov. 1957





CHANGES IN DOCTRINE
DEVELOPMENT
SOCIETY

FARM REAL ESTATE TRANSFERS



YEAR ENDING MARCH 15

*INCLUDES INHERITANCE AND GIFTS, TAX SALES, AND MISC.

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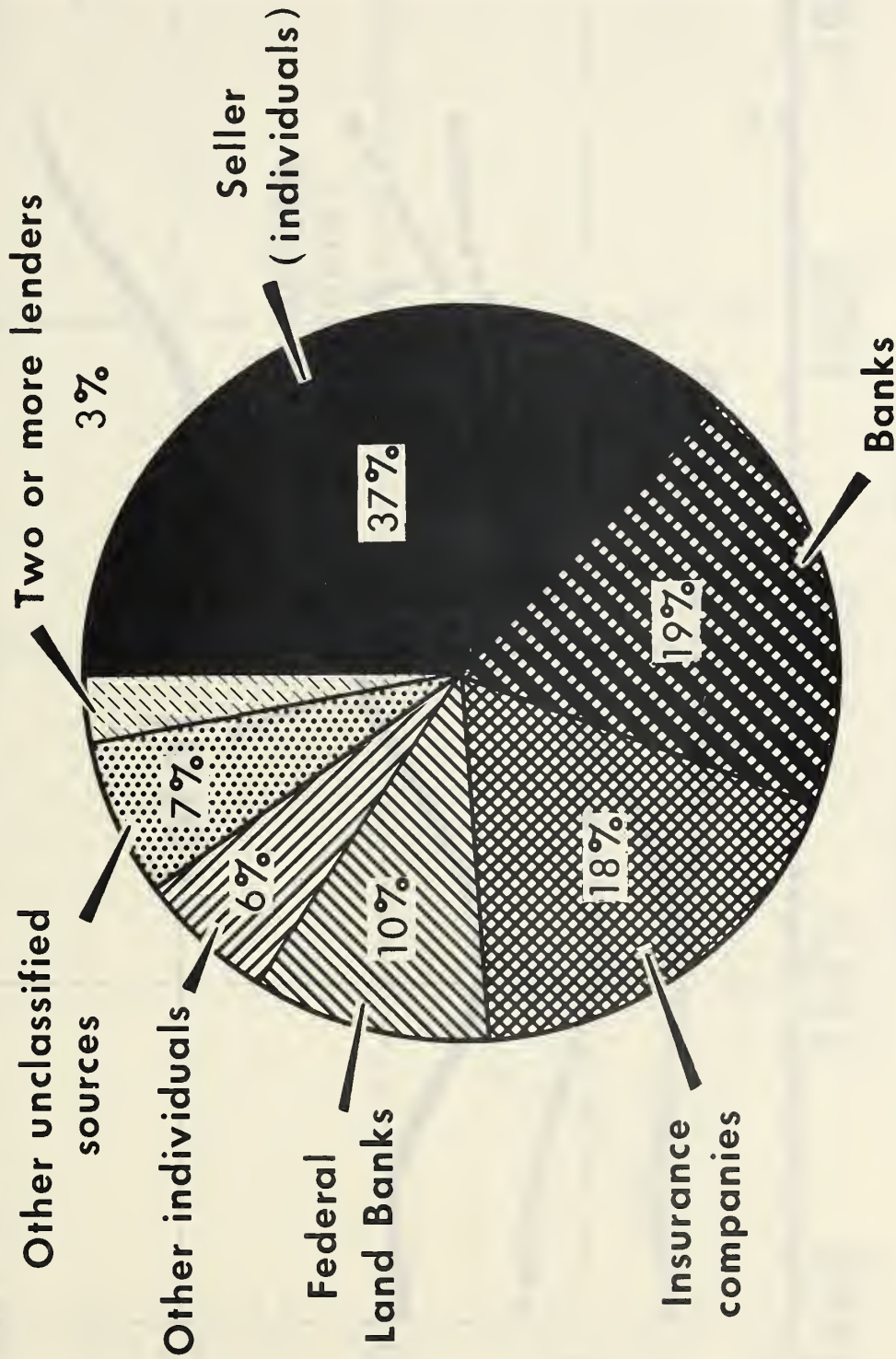
FIGURE 4

2002 MAINTENANCE STATEMENT



Costs are shown in thousands of dollars.

CREDIT SOURCES FOR FARM PURCHASES



PERCENTAGE OF CREDIT PURCHASES FINANCED BY EACH CLASS OF LENDER

YEAR ENDING MARCH 1, 1956

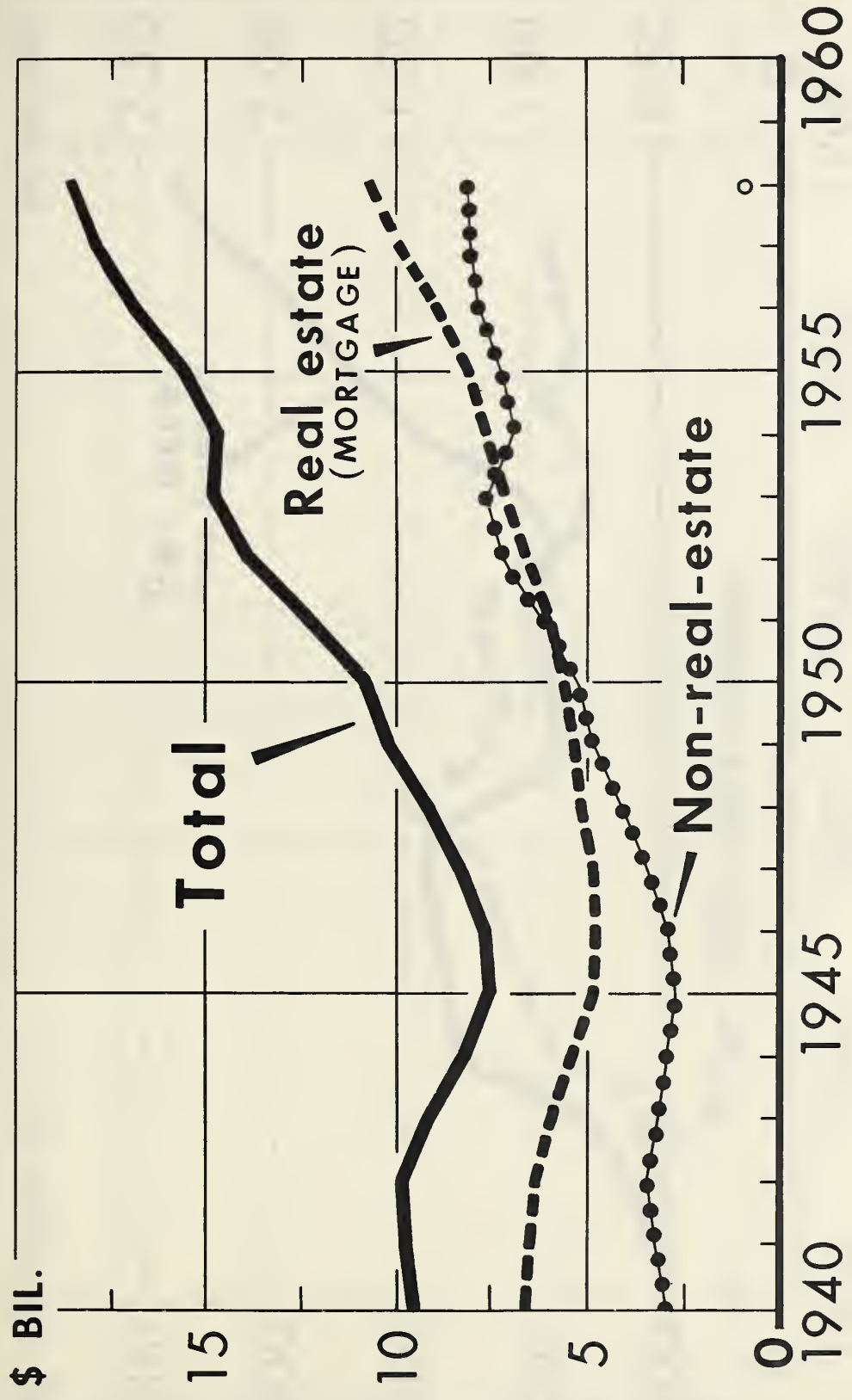
FIGURE 5

THEORY OF THE EARTH



THEORY OF THE EARTH

FARM DEBT *



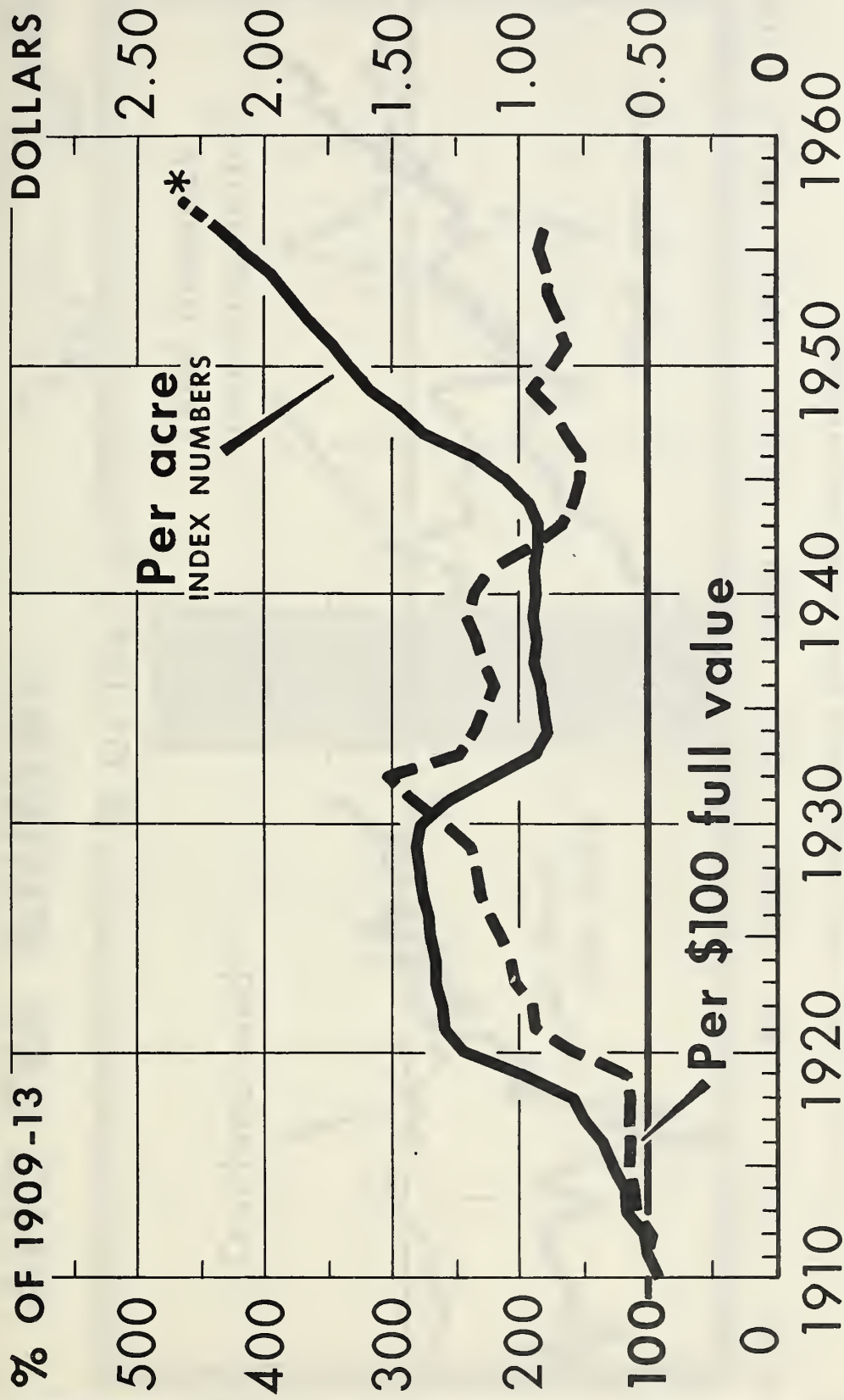
* EXCLUDING CCC LOANS O PRELIMINARY

FIGURE 6

1830 MS.A.1



FARM REAL ESTATE TAXES



* DATA ARE FOR YEAR OF LEVY

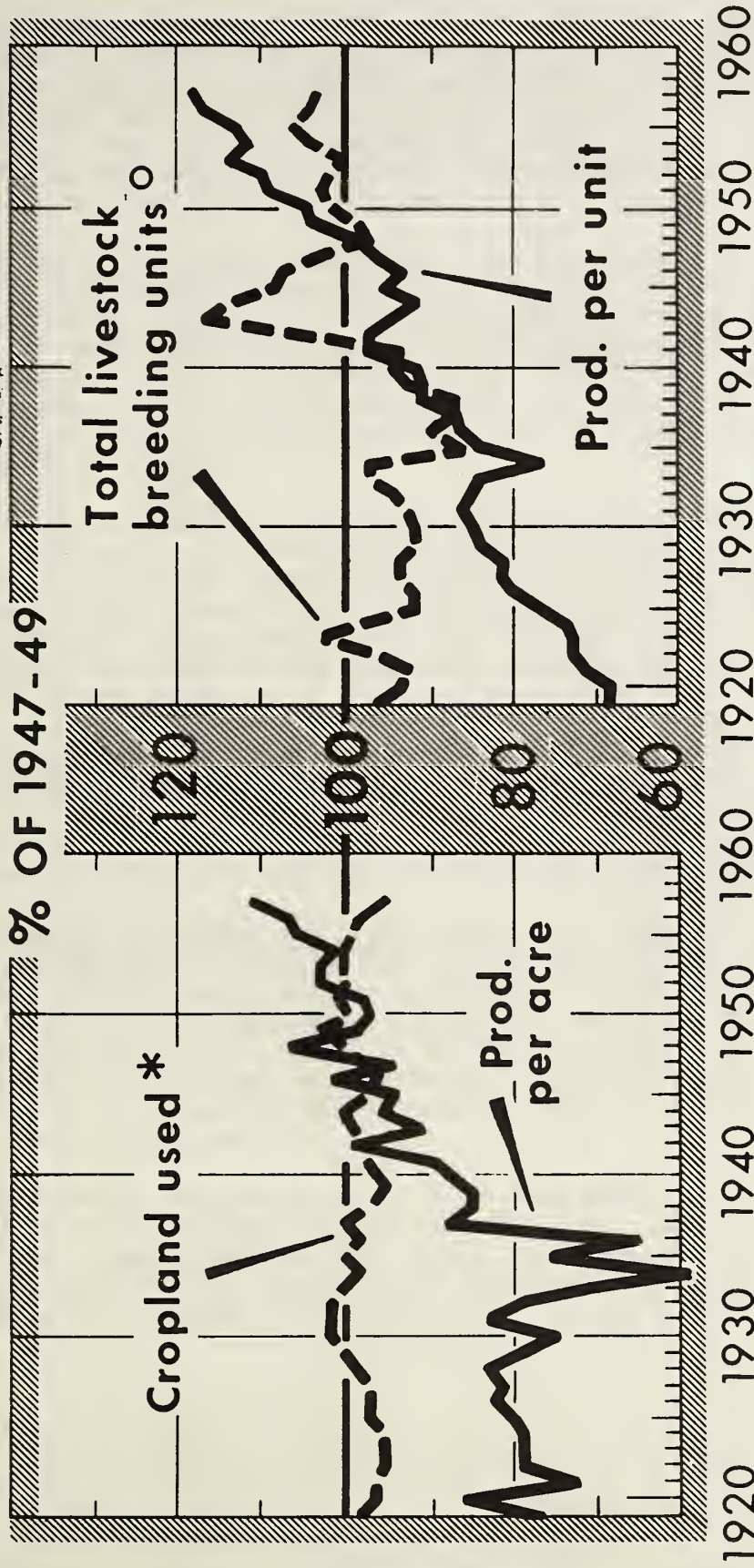
PRELIMINARY DATA FOR 1957

FIGURE 7

23XAT 31AT23 JASR M3MA3



FARM PRODUCTION PER ACRE AND PER ANIMAL



* ESTIMATED ACREAGE FROM WHICH ONE OR MORE CROPS WERE HARVESTED

PLUS ACREAGE OF CROP FAILURE AND SUMMER FALLOW

O INCLUDES ALL BREEDING LIVESTOCK EXCEPT HORSES, AND ALL LIVESTOCK PRODUCTION EXCEPT FARM-PRODUCED POWER OF HORSES AND MULES

382A 939 M011000089 MXXA

JAMINA 939 QMA

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11-11-11 10:11



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Total crop production in 1957 promises to equal the record outturn of 1948 and 1956. This was made possible despite the smallest number of acres planted in 40 years, by a record crop production per acre—4 percent above the previous record set in 1956. Production of livestock feed crops attained new record highs in 1957, while the production of food grains, cotton, and tobacco was the lowest in 10 years.

67. Farm tenancy declines. Farm tenancy has reached an all time low. In the two decades, between 1935-54, the number of tenants declined 1.7 million. Less than 1.2 million of the 4.8 million farms are now operated by tenants. The number of tenants of every type has declined, but especially notable is the 63 percent reduction in the number of sharecroppers since 1935. In the same 20-year period, acreage of land in farms operated by tenants dropped from 336.8 to 190.4 million.

About 400 million acres, or 35 percent of the total farmland acres, was under some form of rental arrangement in 1954. More than half of this acreage was operated by operators who owned part of their farm. This part-owner group is the only class of tenure that has increased steadily since it was first defined in 1900. By 1954, operators who both own and rent were farming more land than any other tenure group.

68. Fatal accidents on farms. Analysis of Vital Statistics for 1949-53 indicate that the fatal accident rate on farms was highest in the age groups including 55 years and over. Nearly a third of the reported deaths were caused by machinery, with notably high rates for boys aged 10 to 19 and for children under 5 years old.
69. Investment per worker and liquid assets of farmers. The amount of investment actually used in farm production is estimated at about \$132.3 billion, or 75 percent of the value of all assets in agriculture. This averages about \$16,800 for each farm worker. In 1940 such assets were valued at \$3,400 per worker. Data from the manufacturing industry is not strictly comparable, but indications are that the investment per industrial worker is somewhat smaller than for agriculture.

Bank deposits, currency, and U. S. Savings Bonds owned by farmers—held for both business and personal use—total about \$15.2 billion. These financial assets have been increasing about \$0.2 billion per year for the past several years, mainly from small increases in savings deposits and U. S. Savings Bonds.

70. Projections made of size of farm production job in 1975. Further growth in population in the United States and rising consumer incomes will mean increasing needs for farm products. A study completed during the last year sets forth some of the dimensions of the size of the farm production job for 1975. The projections were made under specific assumptions regarding growth in our economy and the upward trend in our population.

Requirements for farm products for 1975 could demand volume of farm output about a third greater than in 1951-53. This would represent a sizable job when compared with historical changes in farm production (fig. 9). Average yearly increases needed in farm output between 1951-53 and 1975 would be greater than in any of the historical periods shown in the chart, except for the period of World War II.

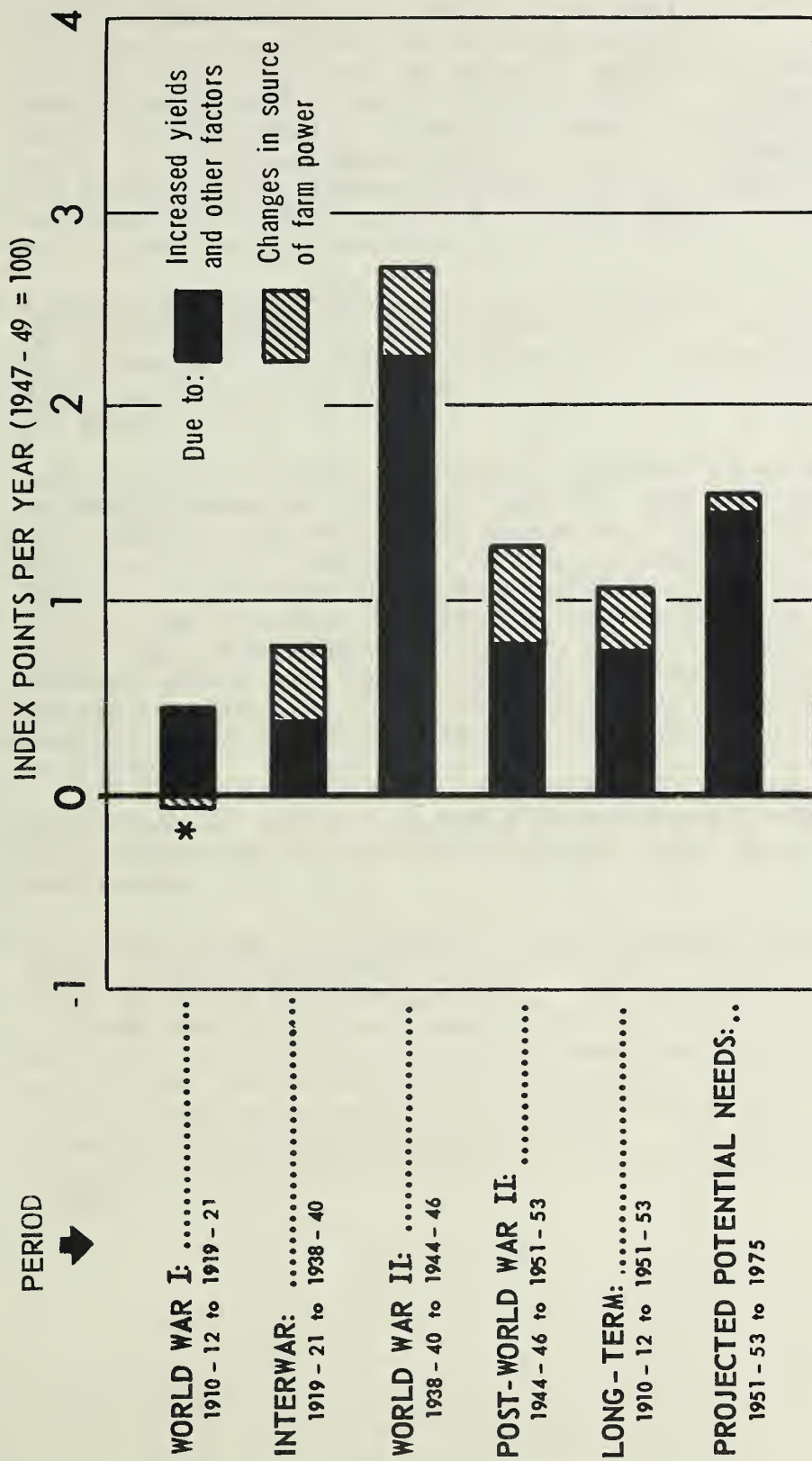
The transfer of cropland and other production resources from feeding and maintenance of farm horses and mules to production for market has been an important source of increase in farm output in the past. Mechanization has now advanced so far that this will be a nominal source of increase in output in the future.

Although the size of the production job ahead appears large when judged by past performance, there are indications that technological developments encouraging more intensive agriculture will provide the means for meeting future production needs. The volume of farm output actually attained in 1956 matched the total projected as needed 4 or 5 years hence. The need for increasing output will come chiefly in the longer term period ahead.

71. Investment costs for irrigation in humid areas vary widely. A survey covering 95 percent of the acreage irrigated in the 28 Eastern States shows that the average cost of irrigation systems varied according to method of irrigation as follows: portable sprinklers, \$166 per acre; fixed overhead pipe, \$577 per acre; portable gated pipe, \$80 per acre; ditch, \$62 per acre; flooding, \$38 per acre. Farmers who installed systems to irrigate small acreages had wide, extremely high investments on a per acre basis. The average per acre investment costs ranged as follows: under 10 acres irrigated per farm, \$500 per acre; for 10-19 acres, \$300 per acre; for 50-99 acres, \$125 per acre; for 100 to 199 acres, \$96 per acre; and for farms with 1,000 or more acres under irrigation, \$54 per acre. Forty percent of the Eastern irrigation farmers obtain their water supplies from flowing streams or rivers, about 20 percent from wells, another 20 percent from stored springs and surface runoff, and the rest from a combination of various sources including city water works.

72. Production and incomes on part-time farms can be increased. The rapid industrial expansion in rural areas of the Piedmont, and other areas of the South, affords increased nonfarm employment opportunities for farm people. The prevailing pattern in many areas is for the farm family to remain on the farm while one or more of its members work at nonfarm jobs. Although farming in

ANNUAL CHANGES IN FARM OUTPUT



*INCREASE IN HORSES AND MULES RESULTED IN OUTPUT DECREASE

FIGURE 9

conjunction with nonfarm work usually is profitable, farm production often is inefficient and the contribution of the farm to family income is much below its potential. The usual part-time farm in the Piedmont area of North Carolina contains about 25 acres of crop and pasture land and has about 2.4 workers per farm. It produces a net farm income of less than \$1,000. Operator and family labor employed at nonfarm work earns an additional \$2,000 to \$2,500. With additional capital and with full use of operator and family labor on nonfarm and farm work, net family incomes for many families could be increased to nearly \$10,000 - about \$6,000 from nonfarm work and about \$4,000 from the farm.

73. Financing the production of broilers in Delaware. Only 6 percent of the broilers grown in lower Delaware in 1955 were grown by independent growers. About two-thirds were produced under contract with feed dealers, and the rest by dealers and other firms on their own account.

During 1955, the average outstanding investment in chicks on feed in lower Delaware was about \$5.5 million. Nearly 85 percent of this investment was made by the contracting dealers, as they provided the chicks, feed, and other supplies needed by contract growers as well as for their own production. About 20-25 percent of the total investment in chicks on feed was financed through credit extended by feed manufacturers, about 20-25 percent was financed through cash loans obtained by dealers and independent growers, and the remaining 50-60 percent of the investment was supplied by the dealers and the independent growers from their own funds.

The majority of growers apparently prefer to grow broilers under contract because this type of arrangement limits the risks they must assume.

74. Labor and capital requirements for dairying can be reduced. A study completed this year in Illinois shows how simplified dairy buildings of the loose housing type, together with well-designed equipment and improved management practices, can reduce by almost 50 percent the capital requirements needed for herds of 20-30 cows. Time spent on dairy chore labor on farms planned around a loose housing system was about half that usually spent on farms using stall barns with customary practices. Through effective sanitation and cooling, the quality of milk production was maintained.

Agricultural Engineering Research

75. Draft for subsurface tillage equipment reduced. Basic studies at the National Tillage Machinery Research Laboratory at Auburn, Ala. indicate that the proper design of the mounting for subsurface tillage devices materially reduces draft without reducing effectiveness. These findings, first observed in small-scale model studies, have been confirmed by full-scale field experiments. Under many conditions power requirements are reduced 10 percent or more and may be decreased 25 percent in some situations.
76. Electric energy saved by use of heat-pump in milk-room. Research on the use of a heat-pump to transfer heat extracted from milk during the cooling process to preheat water for washing dairy utensils indicated a saving of 4,000 kw. hr. (kilowatt hours) annually. A 400-gallon direct expansion bulk-milk tank and a 50-gallon preheat water tank with a temperature range of 55° to 120° F. were used in this study in cooperation with the Washington Agricultural Experiment Station.
77. Anti-static solutions sprayed on seed cotton prevent formation of static electricity during ginning. Static electricity on seed cotton frequently interferes seriously with ginning operations. Results of experiments conducted over a period of several years at the Cotton Ginning Research Laboratory, Mesilla Park, N. Mex. show that anti-static chemicals have great possibilities for use in controlling static electricity during ginning. Some suitable chemicals are relatively inexpensive, easy to apply, and do not damage the fiber. The most promising of these materials will be tested at commercial gins during the 1957-58 ginning season.
78. Improved spray equipment helps combat aphids on potatoes. In the Klamath Falls seed-potato growing area of Oregon and California, where growers have had increasing difficulty in controlling aphids on potatoes with parathion, improved spray equipment was tested. It proved so effective that growers are having such equipment made for their own use. This sprayer, developed and tested jointly by agricultural engineers and entomologists, utilizes an air blast to apply the insecticide from below the plant foliage for better penetration and circulation. Extensive tests with this sprayer including further improvements, will be conducted in the Columbia Basin of Washington to determine if it can be adapted to provide effective control of resistant aphids on table stock potatoes in that area where cultural practices are different.
79. New controller developed for radiant heat brooder. A new radiant heat controller, designed particularly for use in electric chick brooders heated by infrared lamps or other electric radiant heaters, has been developed in cooperation with the Indiana Agricultural Experiment Station. It provides economical operation of radiant heaters because it is sensitive to radiant heat to which thermostats on existing electric brooding equipment do not respond. The

new unit meets more closely the apparent chick requirements than any presently available thermostat. The device consists of a 4-inch black globe with a thermistor sensing element, transistor amplifier, and a sensitive relay to sense and control the internal globe temperature.

80. Labor reduced in handling honey at apiary. In cooperation with the Arizona and Wisconsin Agricultural experiment stations automatic controls have been developed which will materially reduce the labor required for extracting honey. These controls, consisting of electric solenoids, switches and timer, reverse the direction of the extractor's rotation at the desired intervals and stop the unit at the end of the cycle. The need for constant attention to manually reverse and stop the extractor is eliminated.

UTILIZATION RESEARCH AND DEVELOPMENT

Current activities: Investigations are conducted in the field of chemistry and related physical and biological sciences to develop new and improved foods, feeds, drugs, fabrics, industrial chemicals, and other products from agricultural commodities; to devise improved methods for evaluating the suitability of commodities for processing; to devise better processing methods; and to increase the use of byproducts thus effecting maximum utilization of agricultural commodities.

Selected Examples of Recent Progress

1. Dialdehyde starch gains importance as new industrial raw material. Much industrial interest in dialdehyde starch has developed in the past year as a result of continued research on the production and properties of this new raw material. Several applications for license to use 3 public service patents covering the production process have been received. One of the most promising uses discovered for dialdehyde starch is as a tanning agent for leather. Preliminary experiments indicate that it may be superior to the vegetable tannins which are imported now at the rate of some 240 million pounds annually. Several suppliers of tanning materials have requested samples for evaluation studies. Additional samples have been made available to starch producers and other manufacturers. Evaluation of dialdehyde starch as special paper and textile sizing agents, binders, adhesives, and a variety of other uses is in progress.
2. Improved wet milling process designed for wheat flour. An improved continuous "batter process" has been designed for the wet milling of wheat flour into gluten, starch, and soluble fractions. Using simpler equipment and less power and water than the wet-milling processes now in general use, the new technique produces high quality undenatured gluten and prime quality starch and recovers the soluble fractions at low cost. Applications of the process to the milling of a variety of flours and ground whole wheats are being studied. Studies on new uses for the "soluble fraction" are being carried out in cooperation with industry to develop preferred uses for this product.
3. Wrinkle-resistant, permanently-creased, wash-and-wear cotton garments produced in laboratory. Research in cooperation with industry and the National Cotton Council has produced cotton shirts and trousers that resist undesirable wrinkles, yet retain desirable creases. They can be washed and spun in an automatic washer and dried in a tumble dryer. These cotton garments are superior in comfort, and equal to or better than most of the wash-and-wear synthetic fiber garments because they do not require tedious hand laundering followed by "drip drying."

Cotton garments have been treated with inexpensive and improved commercial resins, and cured in place simply by pressing with an electric iron. Preliminary results show that it is also possible to produce "no-muss" cotton dress trousers from resin-treated yard goods. A "recuring" process allows the wrinkle-resistant cotton to be realigned so as to produce creases where desired. The commercial application of this project is aimed particularly at the men's summer-weight dress cotton suits and slacks market—a 173 million square yard market, of which cotton now holds only 11 percent.

4. Improved protective treatment developed for cotton awnings. Research conducted jointly by the Department and the Canvas Products Association International, has demonstrated that new materials and treatments now available commercially can greatly improve the overall weather resistance of coated cotton awnings. These results should aid the industry in producing more durable canvas goods and awnings. The potential market for awnings, tarpaulins, tentage, field coverings, and beach umbrellas amounts to approximately 200,000 bales of cotton per year.

Specifically, research has shown that treating canvas with urea-formaldehyde resin plus copper-quinolinolate confers greater weather durability than standard commercial awning fabric treatments. Fabrics given the new treatment and coated with formulations based on alkyd-type synthetic resins have retained 92 percent strength after 12 months of weather exposure, while conventional awning fabrics coated with natural drying oil-base formulations retained only 67 percent strength. Furthermore, a five-fold reduction in drying time has been obtained by the use of the alkyd coating resins.

5. Soybean and linseed oils yield promising new industrial chemicals. Vinyl ethers of fatty alcohols and adducts of fatty acids represent two of many possible industrial chemicals that promise to aid our vegetable oil industry in capturing new markets and retaining old ones. The vinyl ethers convert to varnishes which have unusual adherence to metals as well as excellent alkali and water resistance. The adducts are primary softeners for vinyl resins (used for commercial plastics) and can be readily converted to stabilizers for these resins. Industrial evaluation of these two new chemicals is now in progress.
6. Pine gum industry adopts continuous turpentine still. The first continuous still for distillation of pine gum in this country was installed by the industry at the beginning of the 1956 season. Compared with the batch-steam still now in general use in the industry, the major advantages of the new still include lower labor costs and a substantial reduction in steam consumption. With complete instrumental control of the operation, the new still eliminates about 90 percent of the labor required for the batch still. In addition to lowering costs, the continuous still produces rosin of higher grades and more

uniform quality. During the past year, the firm using the new still processed an estimated 6 million pounds of pine gum requiring no still operator and used only about one-half the amount of steam required for batch-wise distillation. This resulted in a savings of about 1 dollar per thousand pounds of gum in the cost of distillation.

7. Production of vinyl stearate means new market for animal fats. Large surpluses of inedible animal fats have accumulated because soap, their chief commercial market, has been supplanted in large measure by petroleum-based detergents. Extensive research in cooperation with interested industrial producers has now brought vinyl stearate—a commercially valuable chemical derived from fats—to the plant production stage. One large company has already announced construction of a plant whose initial production will total 2 million pounds of vinyl stearate annually at a selling price of \$0.65 per pound. Vinyl stearate can be used in the production of paper coatings, textile finishes, water-repellent vehicles for water base paints, and permanently flexible films; other uses include food packaging, electrical applications, and rigid plastics having improved processing characteristics. Because of its wide applicability in the large existing market for vinyl plastics (500 million pounds per year), the use of vinyl stearate should increase rapidly and provide a substantial outlet for animal fats.
8. New wool processing treatment imparts acid, alkali resistance. Wool is damaged by strong acids and caustics during the dyeing and bleaching operations used to make yarns, and by deodorants and cleaning compounds during the life of woolen garments. A new chemical agent has been discovered and demonstrated on a laboratory scale which makes wool more resistant to the action of compounds encountered in manufacturing and in normal usage. The new treatment is permanent because the treating agent is chemically attached to the wool at the points ordinarily damaged by the acids and caustics. From the consumer's viewpoint the treatment should be especially attractive because it does not impair the water repellence, softness, or strength of the wool.
9. Treatments to impart "easy care" properties to wool fabrics discovered. In the course of an extensive investigation of the effects of chemical treating agents on the properties of wool fiber and fabrics, treatments have been found in the laboratory that impart to wool two of the most important properties that are essential in the production of "easy-care" garments, namely crease and pleat retention and shrinkage resistance. Work is now in progress to combine the two different kinds of effect in the same fabric, to find chemical treatments that will impart the several other characteristics necessary for "easy care", and to modify processes and treating materials until the highly valued natural properties of wool such as softness and warmth are fully preserved or enhanced.

10. Commercial use of belt-trough dryer proves successful. Dehydrated vegetables of superior quality are now being produced in a battery of belt-trough dryers installed in one of the country's newest and most modern dehydration plants. Developed by Department engineers to replace the conventional truck-and-tray tunnel dehydrator, the belt-trough dryer produces a superior product with less labor required for plant operation and final product inspection. Products from the new dryers are brighter in color, more uniform in appearance, and free of contaminating wood slivers. The dryer installation was described in two recent publications. As a result, many inquiries have been received requesting plans for the dryer. A second commercial installation has been placed in operation recently and other dehydration plant operators have indicated their intention to install the new type dryer.
11. Dairy waste disposal process adopted commercially. The rapid aeration process for disposal of dairy waste developed by the Department has been adopted by some 60 dairies. A large machinery manufacturer is manufacturing entire waste treatment units based on the principles of the process. Commercial adoption of the process will make it possible for dairies, particularly smaller dairies, to dispose of their waste at a lower cost than would otherwise be possible through use of conventional-type disposal plants. This will tend to relieve the pressure on many plants by health authorities to discontinue discharging their wastes into streams because of the polluting effect.
12. Grinding fresher sugarcane means higher returns for growers and processors. Cane left in field rows after curing and burning off the leaves loses both weight and sugar content. A conservative estimate of the loss to growers is \$5 per acre for each day of delay in delivering harvested cane to the mills. Juices from samples ground within 24 hours after hand cleaning, within 48 to 72 hours when cleaned by burning, and at successively longer intervals up to 2 weeks after cutting, were analyzed and processed on a pilot plant scale. The results showed losses of about \$40 per acre when an average yield of 25 tons of cane was allowed to remain in the field 8-9 days. Publicity given the results of these experiments has resulted in marked improvement in the freshness of cane received by the mills. This research was conducted in cooperation with the Louisiana Agricultural Experiment Station and the American Sugar Cane League.
13. Improvement in drying process for western rice reduces cost, increases export possibility. A new and improved rice drying procedure developed by the Department has been successfully applied on a commercial scale. Two commercial plants which participated in the initial demonstrations now use the new

procedure routinely and other plants are following suit. The new procedure eliminates much of the breakage of rice with attendant decrease in value that occurs during the artificial drying procedures conventionally used by the industry. The resulting saving, applied to sales prices, can materially improve the competitive position of Western rice in its traditional export markets, and help to reopen important outlets.

HOME ECONOMICS RESEARCH

Current activities: Investigations are conducted on human nutritional requirements, the composition and nutritive value of foods, and problems relating to the household preparation and preservation of foods. Studies are made of problems in the household utilization of textiles, clothing, and equipment, and of family requirements for housing and related facilities. Investigations are made also of food consumption practices and the nutritive value and economy of customary diets, patterns of rural family expenditures and production for household use, and economic problems of household management.

Selected Examples of Recent Progress

1. Amino acids studied. Low biological values found for some food proteins have long been attributed to deficiency of one or more essential amino acids. Recently completed research on digestibility of protein-rich foods fed to young men indicates that incomplete absorption of certain essential amino acids may accentuate the low biological quality of some proteins. This was found true in a heat-processed plant protein containing considerable carbohydrate. The amino acids most affected included some already low, thus aggravating the deficiency. This work confirms for human subjects observations made earlier that heat processing renders some amino acids less available to laboratory animals and also to organisms used in microbiological assays of foods.

To find out where losses of amino acids occur in flour milling and bread making processes, analyses have been made of an official "national" sample of wheat, its milled fractions, the baking ingredients, and breads baked from flours of 73 and 84 percent extractions. Considerable losses were incurred as fractions of wheat were milled out, slight to moderate losses were traced to the baking per se, and none to the dough fermentation. Losses in baking were around 20 percent for lysine and tyrosine and around 10 percent for leucine, methionine and phenylalanine. For all other amino acids the losses were slight or negligible.

2. Data on fatty acids in foods summarized. Data on the fatty acid content and other characteristics of fat in foods have been summarized from published and unpublished data of many laboratories, including the Department, to meet urgent requests

for reference tables on this subject. However, data are scarce for some foods, the validity of others is doubtful, and the reported values vary widely. The data indicate that fats and oils common in diets in this country fall into four widely different groups as sources of linoleic acid--long recognized as an "essential" fatty acid and now the center of much attention in nutrition research. Those containing roughly 40-60 percent linoleic acid include oils of corn, cottonseed, soybean, and a few nuts; 20-35 percent, the oils of peanut, many tree nuts, and poultry fat; 5-15 percent, olive oil, lard, pork, and hydrogenated fats and margarines; and less than 5 percent, coconut oil, cocoa butter, and fats of milk, beef, and lamb.

3. Comparative energy expenditures of younger and older women determined. It is generally assumed that energy expenditure and caloric requirements decrease with age. However, in recently completed studies of the comparative energy expenditures for performance of selected common activities by urban American women 20 to 30 years of age and 50 to 60 years of age, both basal energy requirements and energy expended for the activities were found to be about the same for both age groups. The basal metabolic rates of the older women agreed with widely-used prediction standards more closely than did the rates of the younger women. The rates below standard found for the younger group confirm other observations on young women of today.
4. Reports on food consumption and dietary levels issued. Ten volumes of statistical tables from the 1955 Household Food Consumption Survey are now being widely used by home economists, nutritionists and others concerned with agricultural programs. The data from 6,000 households on consumption of some 200 food items are reported separately for each of 4 regions, as well as for the United States as a whole. Households are classified by income for urban, rural nonfarm, and farm groups. Five of the reports include data on the nutrient contents of diets and an appraisal of dietary levels. Many interpretive articles have been prepared by the Department and other groups, based on the collected data.
5. Dietary needs shown by food survey. Greater use of foods rich in calcium, vitamins A and C, and the B-vitamins would have improved many diets according to the 1955 Food Consumption Survey. Although average amounts of food brought into household kitchens were generous, many families had food supplies that did not meet the nutritional goals that are commonly accepted for dietary planning. The proportion of family diets not meeting these goals was greatest for calcium (29 percent) and next largest for vitamin C (25 percent). It is estimated that if everyone in this country whose diet is short in these two nutrients had a diet that met nutritional recommendations, about 9 percent more milk would be used by households and about 6 percent more fruits and vegetables. Considerable improvement in dietary levels has occurred in the past twenty years. In the 1930's a survey showed that a third of the Nation's families had diets that could be classed as "poor." In 1955 in probably as few as 10 percent of the households could the diets be called "poor" by the standards used in the earlier period.

6. Farm family living expenditures reported. For the first time since 1942 family expenditures for a complete list of items are available from about 4,000 farm families representative of all farm operator families in the country. These data are used by leaders of farm and home management programs, and serve as a basis for developing farm family spending plans. Total expenditures for goods and services used for current consumption averaged \$2900. About 30 percent of this was spent for food; 25 percent for dwelling upkeep, household operation, and furnishings and equipment; slightly less than 15 percent each for clothing and transportation. In addition to expenditures for current consumption, farm families spent about \$250 for gifts and contributions and for personal insurance.
7. Effect of modern laundering equipment on fabric studied. The effect of home drying methods on typical white and colored fabrics has been the subject of many inquiries by consumers. These questions often deal with the effects of drying methods on retention of color and dimensions, and changes in certain physical and chemical properties affecting durability. Studies of this problem indicate that drying on inside racks causes the least change in fabric characteristics; the automatic electric and gas dryers were next in order; and outside line drying causes the greatest undesirable changes. Gas and electrically heated automatic dryers of like design operated with similar efficiencies in removing moisture.
8. Efficient heights for built-in ovens determined. Wide variance in the installation of built-in ovens prompted research to determine the desirable installation height of this widely accepted modern-day appliance. It is recommended that ovens be so installed that all normal oven and broiler rack positions are between 28 to 40 inches from the floor. This recommendation, first published in a trade journal, has subsequently been quoted in numerous articles directed to builders and homeowners. Since publication of the findings, commercial cabinet bases have become available that enable placement of ovens at the recommended height.

ADMINISTRATION OF PAYMENTS TO STATES, AND TERRITORIAL RESEARCH

Current activities: For work to be done under Federal grant funds, new and revised research proposals from the State agricultural experiment stations are evaluated and approved, annual programs and budget allotments are reviewed and approved, work and expenditures of each experiment station are examined in the field, and assistance is given to States in organizing, planning and coordinating their research.

The Department operates agricultural experiment stations in Puerto Rico, the Virgin Islands, and Alaska. In Puerto Rico research is conducted primarily on tropical and subtropical crops of economic importance to the continental United States including food, forage,

and specialty crops. In the Virgin Islands research and extension work is conducted in the fields of soil and water conservation, improvement of crop plants for commercial and home use, animal husbandry, and development of better rural living conditions. Research in Alaska, carried on as a joint program of the Department and University of Alaska, includes soil analysis, horticulture, animal husbandry, agricultural economics, agricultural engineering, insect and plant disease control, and field crop improvement studies.

Selected Examples of Recent Progress.

1. Treatment developed for seed germination of Tephrosia in Puerto Rico. One serious problem in the development of improved strains of Tephrosia in Puerto Rico has been overcome. Previously seed germination of this source of rotenone has been only around 25 percent. Methods have now been developed for treating seed that have increased germination to more than 90 percent. These results have made it possible to obtain uniform stands in field plantings from seed. This will greatly accelerate research under the breeding program, which is aimed at increasing the rotenone content of this plant. Tephrosia is a promising new crop for southern United States.
2. Tests made on carrying capacity of pastures in the Virgin Islands. The long seasonal dry period in the Virgin Islands makes it imperative for cattlemen to utilize the limited feed supply in the most efficient manner possible. In a 60-day grazing test on very dry pasture without supplemental feed, 12 St. Croix breed cattle gained an average of 14 pounds while 12 mixed Zebu cattle lost an average of 0.8 pounds. During the same 60-day dry period experiments showed that cattle fed on Pangola grass pasture gained an average of 18.3 pounds. This was more than 3 times the gain of cattle on pastures of Hurricane grass or Coastal Bermuda and more than 6 times the gain of animals on Barbados sour grass. Application of these results will greatly increase the carrying capacity of pastures during the annual dry seasons.
3. Vegetable varieties tested for growing conditions in Alaska. Because of scarcity and high cost of fresh vegetables the Alaska Experiment Station has conducted a series of experiments on these crops. It has been found that home greenhouse operators using skillful management may gross as high as \$7.50 per tomato plant. By screening many tomato varieties it has been determined that Fordhook Hybrid, Mich-Ohio Hybrid and Burpee's Big Early Hybrid are particularly well adapted to Alaska's long day length. From Swedish stocks the station has obtained two green beans, Express Wax and Consewa, that are earlier and bear more heavily than any others tried in the subarctic.

PLANT DISEASE AND PEST CONTROL

Current Activities: The work is divided into three categories: (a) insect and plant disease control, designed to protect agriculture from destructive insects and plant diseases, including inspection to detect and appraise infestations, certification of regulated articles, supervision of treatments required by plant quarantines, application of pesticides, and use of other methods of combating infestations; (b) protective measures, primarily inspections at ports of entry to prevent the introduction from abroad of pests and plant diseases, and certification of the absence of plant pests on plants and plant products for export; and (c) administration and enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act to prevent the sale of mislabeled and inadequately labeled economic poisons, and to safeguard farmers and other users from injury to crops, livestock, or themselves, and from loss resulting from deceptive, careless, or fraudulent marketing practices.

Selected Examples of Recent Progress:

Plant Pest Control:

1. Barberry eradication. More than 8,700,000 barberry bushes destroyed in year ending June 30, 1957. These bushes were found on 3,200 properties distributed over approximately 8,400 square miles in 19 eradication States. Of this total 7,800 square miles were placed on maintenance and will require only sufficient work in the future on infested sites to maintain the barberry-free condition. The total area in the 19 States requiring further work now approximates 54,000 square miles. (See Figure 11).

As a prerequisite to the interstate shipment of barberry and mahonia, 438 nurseries were inspected in over 40 States and the District of Columbia. In the same period 425 dealer inspections were made preparatory to issuance of permits for the interstate shipment of barberry and mahonia stock purchased for resale.

2. Citrus blackfly and Mexican fruit fly control.
 - a. Blackfly surveys continued - Southern Texas apparently free of the pest. Although surveys have been continuous during the entire season, no blackflies have been taken in Texas following the treatment with insecticides of infestations found in 1955 and 1956. During the period May 31, 1955 to August 31, 1956 surveys revealed 33 infested properties (14 of which were found in July and August 1956). Since then none has been found. During the past year 280,342 trees were inspected on 8,229 properties in Texas. A survey

conducted in Mexico from July 1, 1956 to June 30, 1957 from Sonora east through Tamaulipas, showed 809,562 trees inspected on 24,128 properties with 3,301 infested trees found on 206 properties. In the southern part of the State of Tamaulipas the liberation of parasites continues in certain infested groves. The status of the citrus black-fly control program is shown in Figure 12.

- b. Mexican fruit flies found in California and Baja California, Mexico, in 1957. Since the reappearance of a number of Mexican fruit flies at several locations on both sides of the border during the summer of 1957, arrangements have been made with Mexican officials to strengthen the inspection of vehicular, rail, and air traffic arriving from the interior of Mexico as well as the inspection of ships arriving at Baja California ports. As the season developed it became quite evident that the influx of flies in the West was due to exceedingly heavy fruit fly infestations in the generally infested area of central Mexico. Under such conditions the hazard of spread through the movement of noncommercial lots of infested fruit into border areas is greatly increased. Intensive surveys are continuing on both sides of the border. The spraying operations carried on by the State of California since the discovery of the Mexican fruit fly in border areas has prevented it from gaining a firm foothold north of the border. Without the continuing interest and cooperation of the Mexican Department of Agriculture in their inspection, survey, and spraying operations a more intensive and costly eradication campaign in California undoubtedly would be necessary.

Because of Mexican fruit fly populations in the border area of Texas 2,599 properties were inspected in 22 counties, revealing 124 infested properties. The treatment of 158,888 boxes of fruit through May 31, 1957 was necessary. The status of the Mexican fruit fly control program is shown in Figure 13.

3. Golden Nematode Control.

- a. Few new infestations of golden nematode found on Long Island. Surveys during the fiscal year 1957 added only 8 new fields with a total of 297 acres to the previously known infestations.

BARBERRY ERADICATION FOR STEM RUST CONTROL

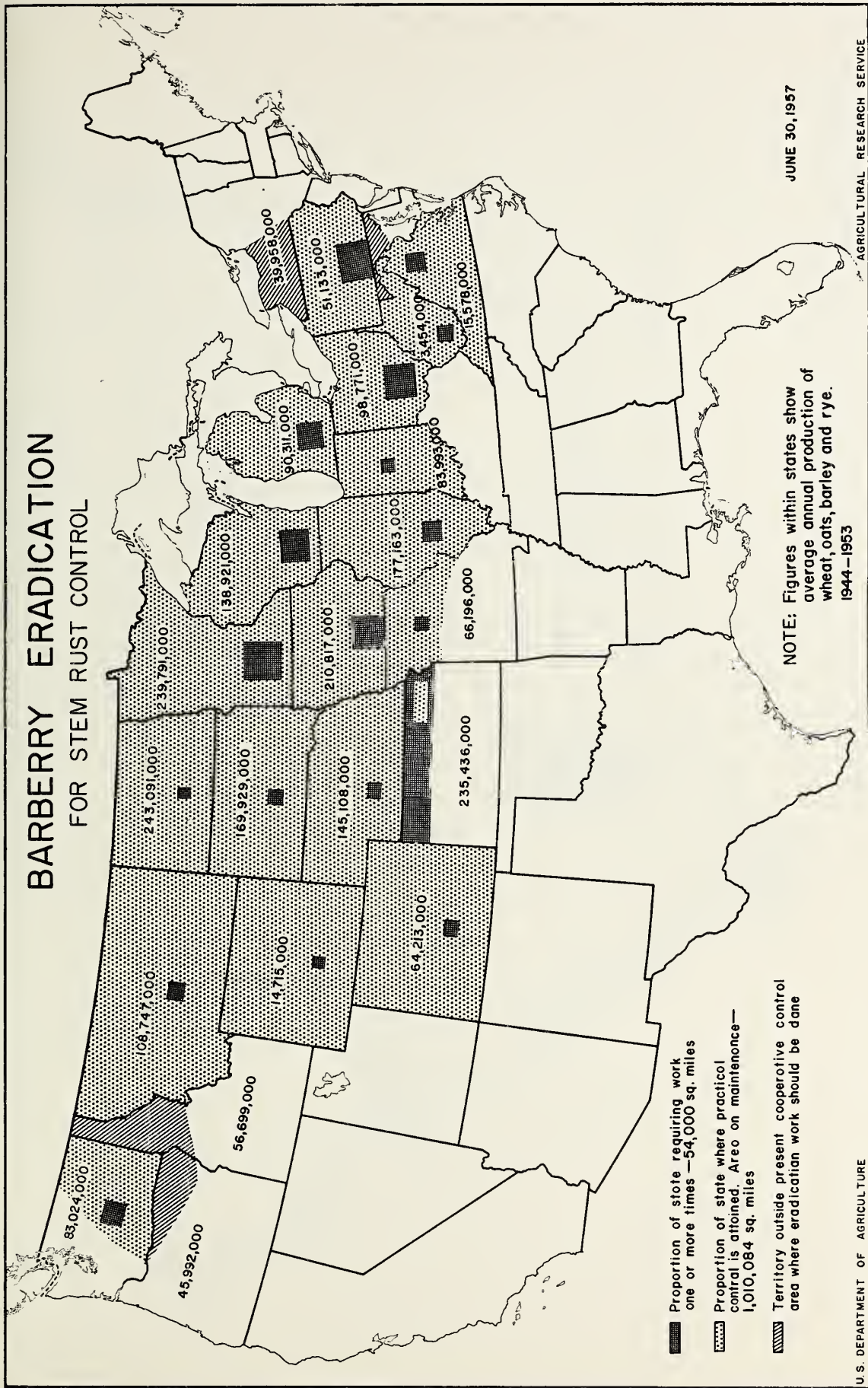
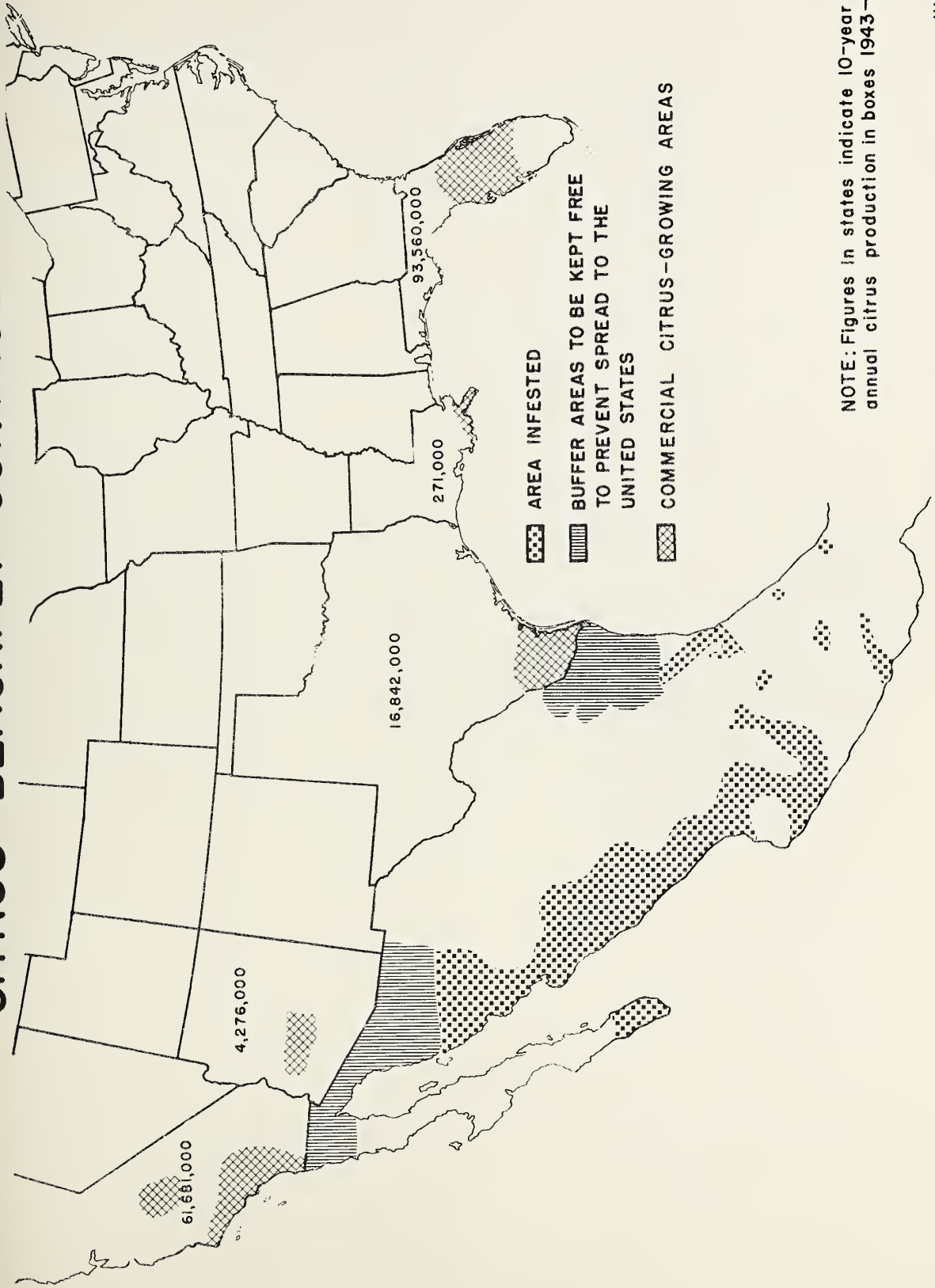


FIGURE 11



CITRUS BLACKFLY CONTROL



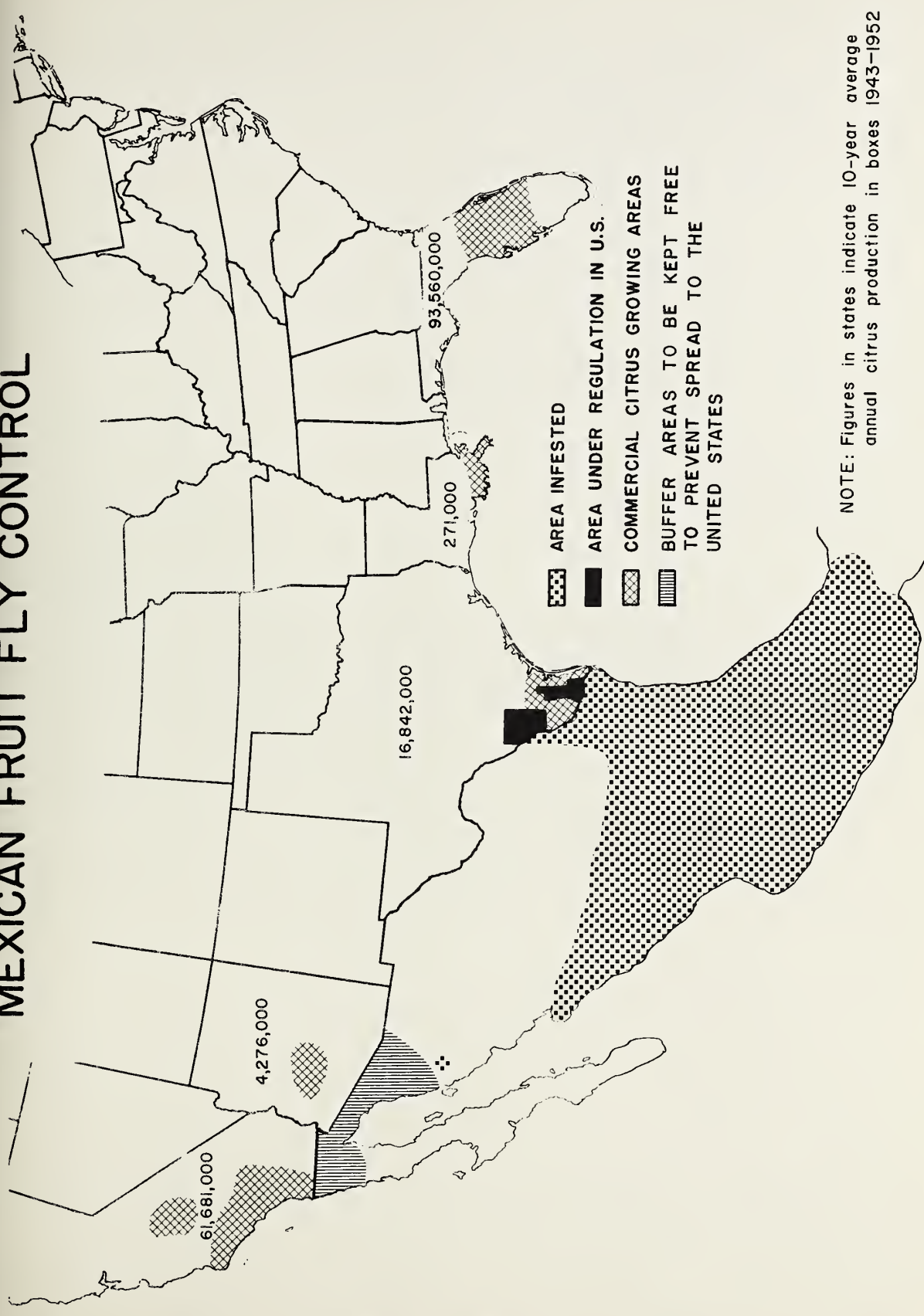
NOTE: Figures in states indicate 10-year average annual citrus production in boxes 1943-1952

JUNE 30, 1957

FIGURE 12



MEXICAN FRUIT FLY CONTROL



NOTE: Figures in states indicate 10-year average annual citrus production in boxes 1943-1952



The new properties found infested were intermingled with or adjacent to known infested properties. This is the second consecutive year that the number and extent of new infestations have continued at this low level. No golden nematode infestations have been found in other potato producing states. These results are attributed to early quarantine action and the immediate retirement of infested land from potato or other host production.

- b. Research findings indicate possibility of eradicating the golden nematode. Field-scale tests were inaugurated in 1956 to determine whether the golden nematode could be eradicated by chemical means. Three fields were selected for the tests and the nematocide DD was applied at the rate of 900 pounds per acre in 2 applications of 450 pounds each, 10 days apart. Potatoes were then planted on the treated land. Laboratory results indicated complete kill of cysts when favorable conditions prevailed for the tests. The program will be continued and expanded during the coming season to determine more accurately the effectiveness of the procedure.

4. Gypsy moth control.

- a. Surveys show 1957 eradication measures were effective. About 36,000 traps were operated within and outside areas sprayed in 1957 in Michigan, Pennsylvania, New Jersey and New York for eradication of the gypsy moth. No moths were trapped in sprayed areas of Pennsylvania, New Jersey or Michigan. In New York, close to the periphery of the generally infested area, moths were captured in 6 counties, 3 of which were within the sprayed area. Moths were captured in three isolated spots outside the sprayed areas of New Jersey and in 7 Pennsylvania counties outside the sprayed areas. An extensive infestation was found in Luzerne County, Pennsylvania, with about 100 acres of trees defoliated. No widespread defoliation occurred in New England this season. Figure 14 shows the status of infestation.
- b. Gypsy moth eradication accelerated in fiscal year 1957. The 1957 program was designed to halt the spread of the insect westward, to eliminate infestations recently established in New Jersey and Pennsylvania and to eradicate the insect in the Southern Catskills, Lower Hudson Valley and on Long Island in New York. Acreages treated as a part of the eradication program totalled 3,027,227 as follows: Pennsylvania, 235,925; New York, 2,579,362; New Jersey, 193,140; and Michigan, 18,800. Acres sprayed under State contract for suppression were as follows: Connecticut, 53,874; Massachusetts, 120,000; New York, 195,463; and Rhode Island, 27,655.

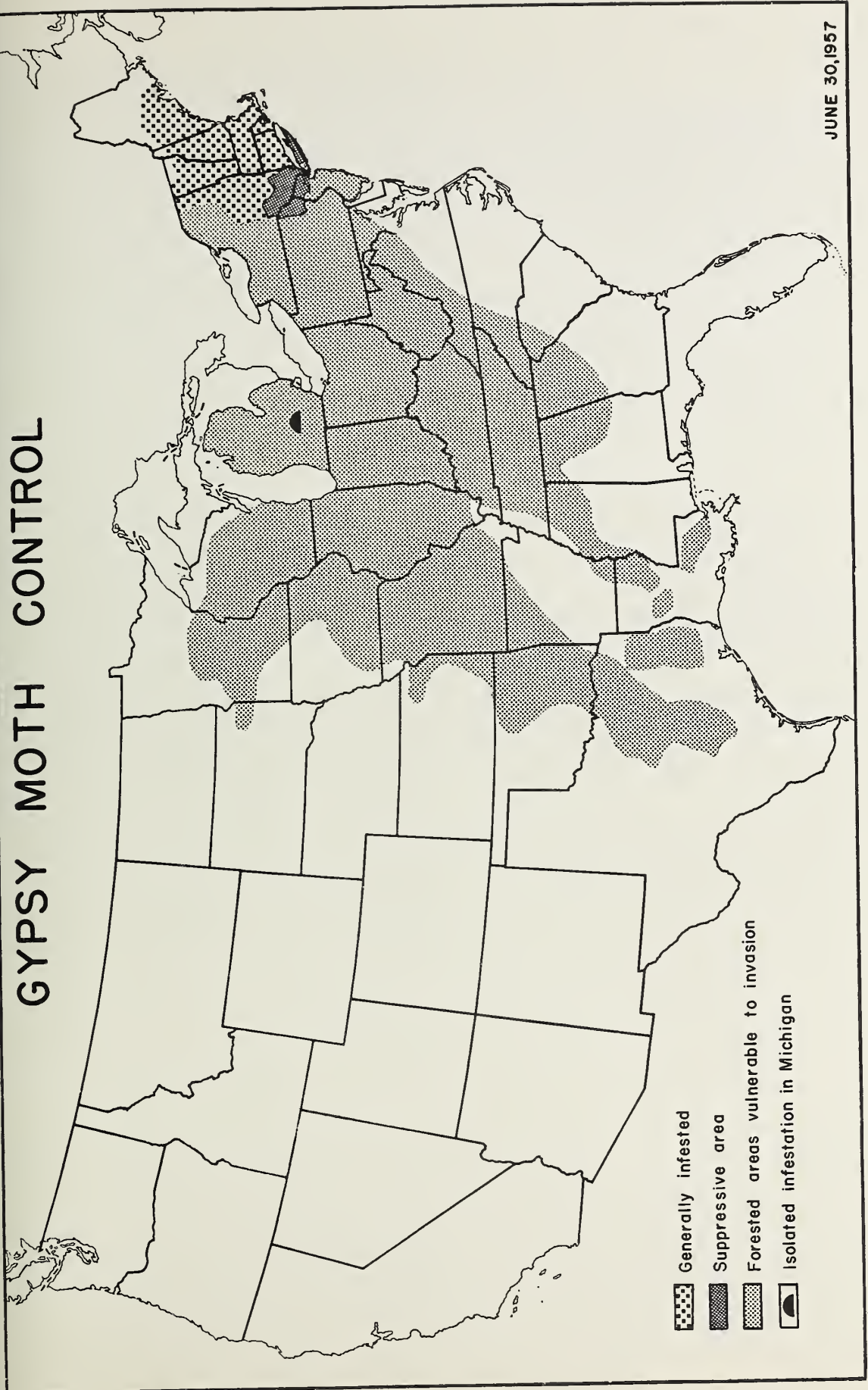
- c. Quarantine action designed to protect eradication areas. On May 16, 1957, eight counties and 12 townships in south-eastern New York, including part of Long Island, the areas in which eradication work is in progress, were designated under the gypsy moth quarantine as "suppressive area". Movement of hazardous articles into the suppressive area is regulated. The purpose of this action is to avoid reinfestation of the eradication areas by preventing the movement of infested articles from the generally infested area into the areas where eradication measures have been applied.

5. No new infestations of Hall scale found. Continuous delimiting surveys on the cooperative Hall scale eradication program have not revealed any additional infestations in the vicinity of Oroville, Chico, Gridley, or Davis City, California. The last infestation was found in June 1956. Inspection continues in the above areas and includes small areas in El Dorado, Contra Costa, Solano, and San Benito Counties.

During fiscal year 1957, 75,237 host plants on 5,095 properties were inspected; 1,580 host plants were removed; 2,657 trees fumigated with HCN; and 1,849 trees still require treatment.

6. Insect detection and advisory service continues to provide timely insect information for farmers and agricultural workers. As an aid to meeting the foreign insect introduction threat, a series of illustrated articles have been published in the Cooperative Economic Insect Report under the caption, "Insects Not Known to Occur in the United States". Special reports on nationally important pests such as the spotted alfalfa aphid, Mediterranean fruit fly, and the imported fire ant have been given wide distribution. Outlook reports published during the past year included status of the European corn borer, grasshopper situation, boll weevil hibernation and survival survey, and chinch bug outlook. Entomologists and agricultural workers throughout the country have shown increasing interest in the weekly insect report. Entomology instructors in colleges and universities use it regularly in classroom work. Thirty-one States, an increase of 5 since last year, now employ full time survey entomologists. This program enlists the cooperative efforts of the Extension Service, the Agricultural Experiment Stations, and the State regulatory agencies; thus assuring complete State coverage of insect problems. More than 8,000 notes for permanent insect record files were received during the year.

GYPSY MOTH CONTROL



JUNE 30, 1957

FIGURE 14

7. Insecticide, Fungicide, and Rodenticide Act.

- a. Responsibilities under the Federal Insecticide, Fungicide, and Rodenticide Act. The purpose of this Act is to assure the general public that commercial pesticides are effective for the purposes for which they are sold, and that when used according to directions they will not cause injury either to the user or to those who may eat treated products. The Act also assures uniformity of regulation. This is being accomplished by requiring correctness of labeling as a prerequisite to registration under the Federal law and by examining samples and taking legal action, when appropriate, against the manufacturers and formulators of pesticides moving in interstate commerce that do not comply with the Act. Close cooperation with the States is maintained in carrying out these functions.
- b. Registration activities. There was a continued increase in the registration of pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act. In fiscal year 1957, 4,222 new products were registered, compared with 3,965 in the previous year. For the fiscal year, 3,509 amended labels and 1,858 distributor's brands were accepted. At the end of fiscal year 1957, there were approximately 39,000 products registered.

Holders of registrations issued during fiscal year 1952 were notified that their registrations had expired. It was found that many of the firms are no longer in business, and a total of 7,800 registrations were canceled.

- c. Responsibilities under the Federal Food, Drug, and Cosmetic Act assigned to Agriculture. One of the purposes of this Act is to improve the procedures for determining the safety of pesticide residues which may remain on raw agricultural commodities shipped in interstate commerce. The Department has responsibility to certify to the Department of Health, Education, and Welfare that a pesticide chemical being considered for a tolerance or exemption is useful for the purpose intended, and to submit an opinion as to whether the proposed tolerance or exemption reflects the amount of residue likely to result when the product is used as directed.

At the end of fiscal year 1957, 98 petitions for tolerances for pesticide chemicals had been processed. A total of 1,515 pesticide chemical uses registered under the Federal Insecticide, Fungicide, and Rodenticide Act are now covered by tolerances. Altogether, 66 pesticide chemicals are covered by these tolerances; 24 have been exempted from the requirement of tolerance on fresh fruits and vegetables; and 7 have been recognized as safe for use on raw agricultural commodities.

- d. Survey of registered pesticide chemical uses. As a result of a survey, a 254-page "Summary of Certain Pesticide Chemical Uses," covering 147 pesticide chemicals, was prepared as an aid to registrants of economic poisons under the Federal Insecticide, Fungicide, and Rodenticide Act in preparing labeling which would meet the requirements of both that law and P. L. 518. Approximately 22 percent of the labels being submitted for registration at the end of fiscal year 1957 bore directions for use which made it necessary to notify the registrant that the best evidence currently available indicated such directions might result in crops so treated being in violation of P. L. 518. The Summary was distributed to registrants, State regulatory and research agencies, trade associations, and to a number of other interested individuals.
 - e. Enforcement activities. During fiscal year 1957, 1,504 of economic poisons were collected by investigators from interstate shipments and tested for chemical composition and performance. Samples from 273 shipments (18%) were found sufficiently misbranded, adulterated, or otherwise in violation of the Act to warrant issuing registered notices of violation. Seizure action was initiated on 23 shipments.
8. Japanese beetle control.
- a. Control measures applied to extensive acreage. During fiscal year 1957, insecticide treatments consisting largely of granular dieldrin at a minimum rate of two pounds per acre were applied to 10,390 acres in areas around Sheldon, Illinois, Bellevue and Cincinnati, Ohio, and Argos, South Bend, and Fort Wayne, Indiana. In addition 85,333 gallons of insecticide were applied as foliage applications as a control measure or in support of regulatory operations.
 - b. The first established infestation of Japanese beetle in Iowa was found at Ft. Madison in July 1957. A total of 55 beetles was trapped in an area covering about two square miles. Iowa is prepared to begin control measures in the Ft. Madison area and take such regulatory action as may be necessary. Regulated articles with an estimated value of \$18,900,000 were certified for shipment from the regulated area during the year. (See Figure 15 for areas of infestation).
9. Phony peach and peach mosaic eradication.
- a. Control activities continue effective against phony peach disease. During fiscal year 1957 in excess of 5,200,000 trees were inspected, 27,106 of which were found infected with phony. This is an over-all infection incidence of 0.5 percent for 1957 as compared with 0.7 percent in 1954, 1.3 percent in 1953 and 2.5 percent in 1952. The low

JAPANESE BEETLE

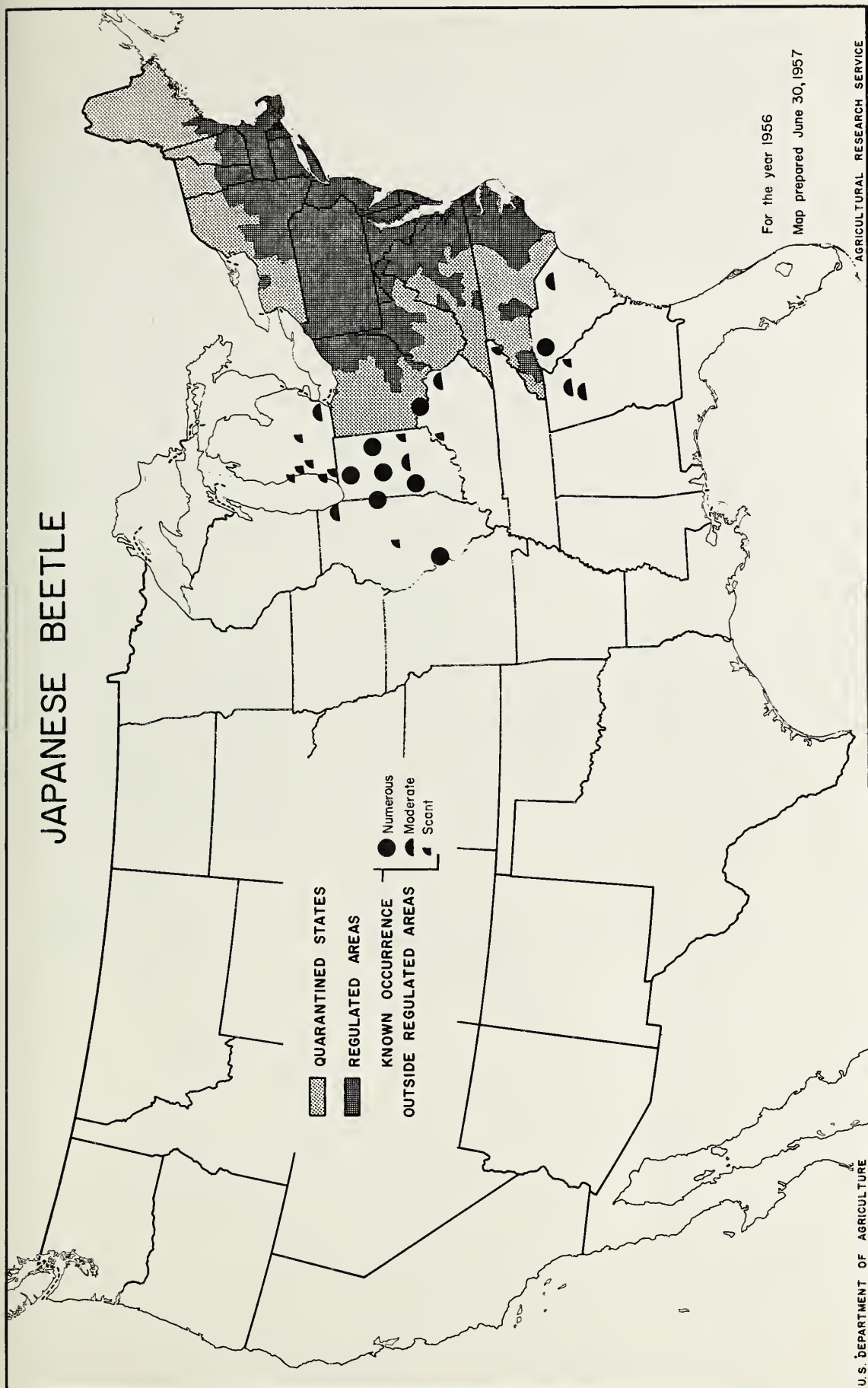


FIGURE 15



incidence of phony disease again this year indicates that present methods are holding the disease in check. (See Figure 16).

During the year, growers have intensified their efforts to destroy wild plum trees in the vicinity of their plantings by use of herbicides. The plum trees which grow singly or in thickets serve as reservoirs of phony infection from which the disease is spread to uninfected peach trees. The program is primarily in the Southeast.

- b. Incidence of peach mosaic remains low. During the year 2,758,097 trees were inspected, 8,966 of which were found infected with peach mosaic. This is an over-all peach mosaic incidence of 0.32 percent as compared to 4.16 percent, 1935. The disease has been reduced from the high level of incidence in 1935 by extensive inspection and tree removal. This problem is confined largely to California and Colorado with some work in Texas, New Mexico, Arizona and other States. The status of the peach mosaic control program is shown in Figure 17.

10. Pink bollworm control.

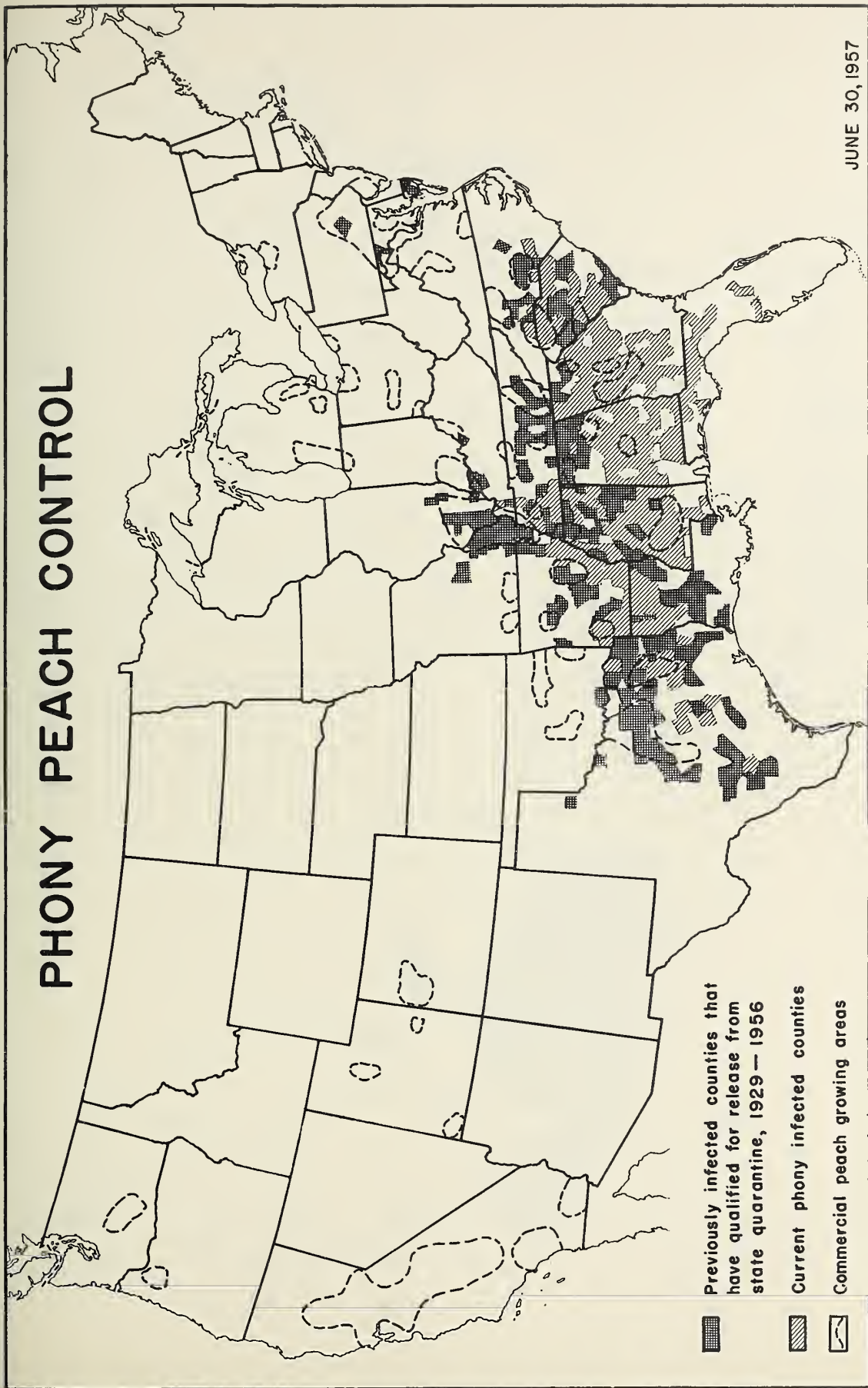
- a. Infested area modified. Pink bollworm was found in 1957 in gin trash in Iberia, Lafayette and St. Martin Parishes in Louisiana adjacent to the regulated area, and a single larva was found in Washington Parish, Louisiana, at the Mississippi line. Union and Lincoln Parishes in Louisiana have been released from quarantine as 1957 inspection results were negative for the third successive year. Only one county in Arkansas showed infestation as a result of inspection through October. Figure 18 shows the pink bollworm quarantine and infested areas.
- b. Pink bollworm infestation in central Texas creates special problem affecting control operations. For the past several years the pink bollworm has been increasing in numbers in central Texas in the Brazos and Trinity River basins creating a real danger of further spread to the North and East. There is urgent need for cotton growers of this area to follow a program of maximum control through the use of insecticides and cultural control methods. The latter includes destruction of cotton stalks as soon as possible after harvest, using efficient shredders which kill a high percentage of pink bollworms, followed by plowing under crop residues to as great a depth as soil conditions will permit.

- c. Movement of Mexican laborers into Arizona and California threatens establishment of new pink bollworm infestations. Mexican cotton pickers (Braceros) moving in large numbers from Mexico into cotton-producing areas of California and Arizona carry articles capable of harboring pink bollworms. In cooperation with Mexican officials inspection stations have been established south of the Mexican border on highways, railroads, airlines and steamship docks to control the movement of certain products and articles either carried by these workers or moving in commercial channels. Despite these checks the large volume of worker movement presents a constant danger of infested seed cotton entering the country and establishing pink bollworm in cotton growing areas. For this reason emphasis is being placed on increasing survey for pink bollworm in these areas. During the past season, bloom inspection was carried out in southern California and adjacent areas in Mexico. Gin trash inspection in the region comprising California, Arizona, and western Mexico was increased over previous years. No established infestations were found.

11. Sweetpotato weevil control.

- a. Insecticides give effective control of sweetpotato weevil in stored sweetpotatoes. During the harvest season of fiscal year 1957, 1.5 million bushels of harvested sweetpotatoes were dusted with insecticides by the growers and storage operators and moved to market or stored in treated kilns. This method of eliminating infestation in harvested sweetpotatoes is a great improvement over methods of a few years ago which included fumigation of all potatoes except those moving to restricted northern markets.
- b. Insecticides also provided for production of weevil free crop. During the growing season farmers applied insecticides to 4,399 seed beds and to 18,142 acres of field plantings. Treating the seed beds results in the production of weevil free planting stock which greatly lowers the possibility of field infestation. Figure 19 shows the status of the sweetpotato weevil control.
- c. Survey expanded. Emphasis has been placed on survey activities to locate weevil infestations. During the past year 122,900 property inspections were made as compared with about half that many in previous years.

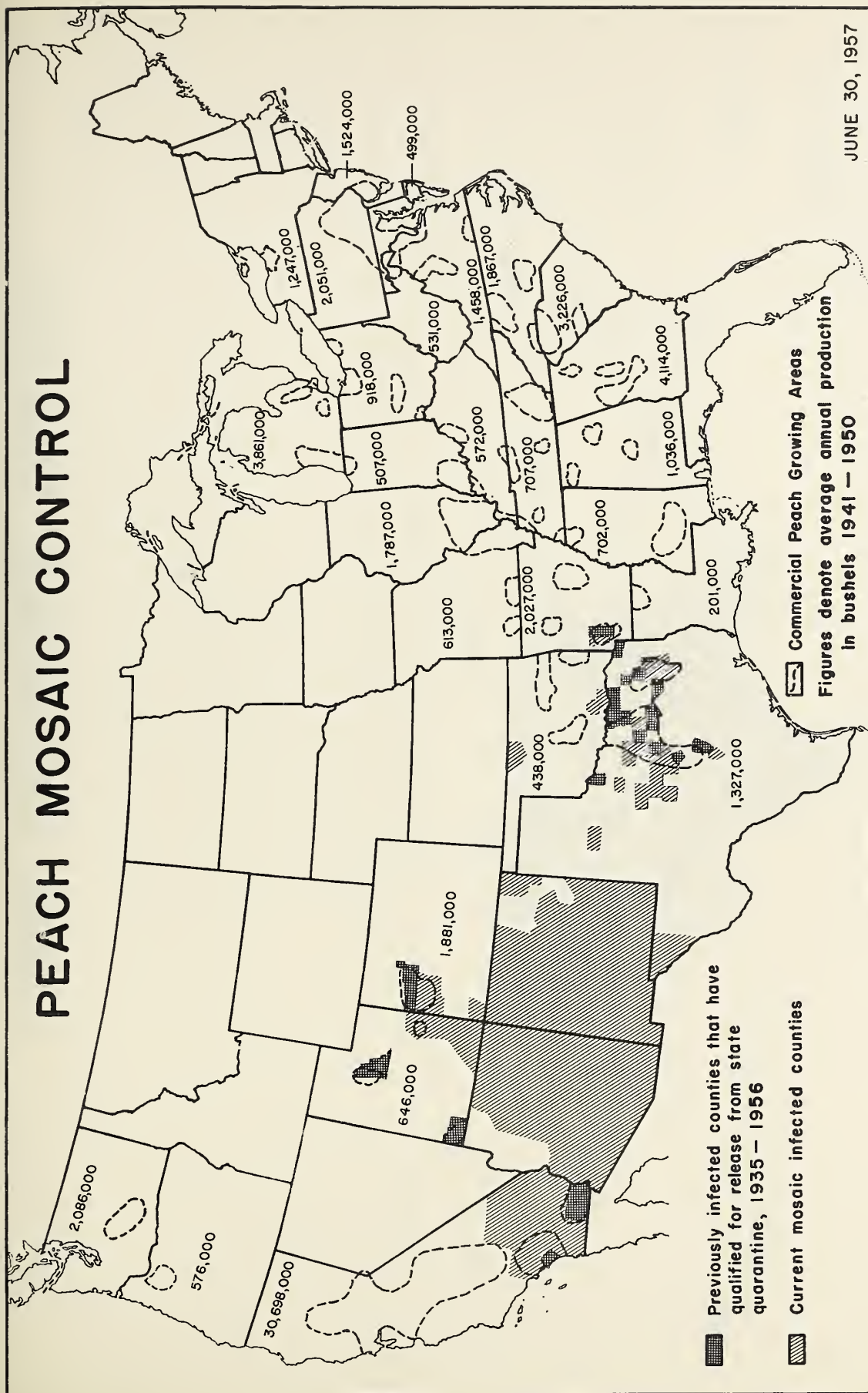
PHONY PEACH CONTROL



JUNE 30, 1957

FIGURE 16

PEACH MOSAIC CONTROL



JUNE 30, 1957

FIGURE 17



PINK BOLLWORM CONTROL

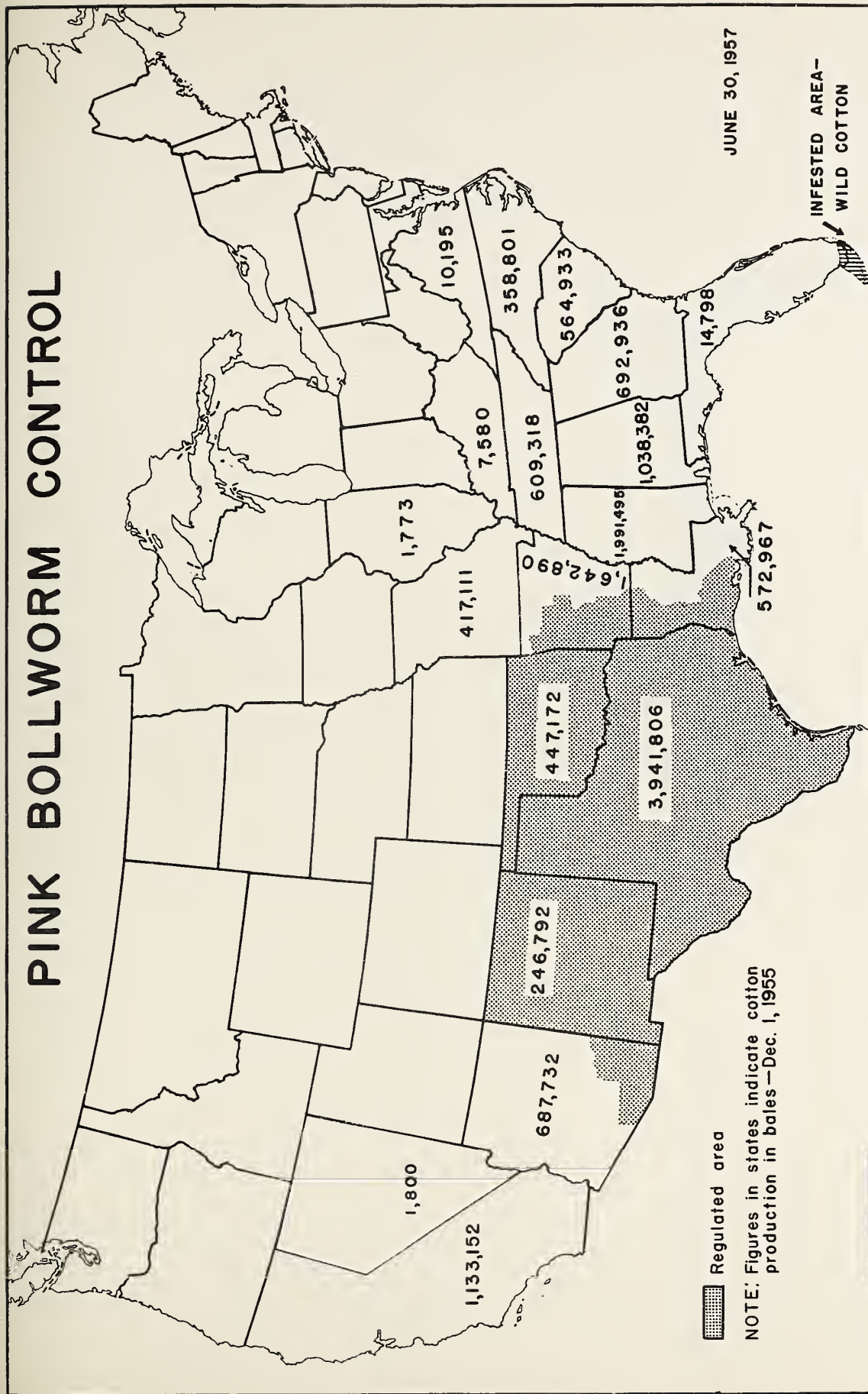


FIGURE 18



SWEETPOTATO WEEVIL CONTROL

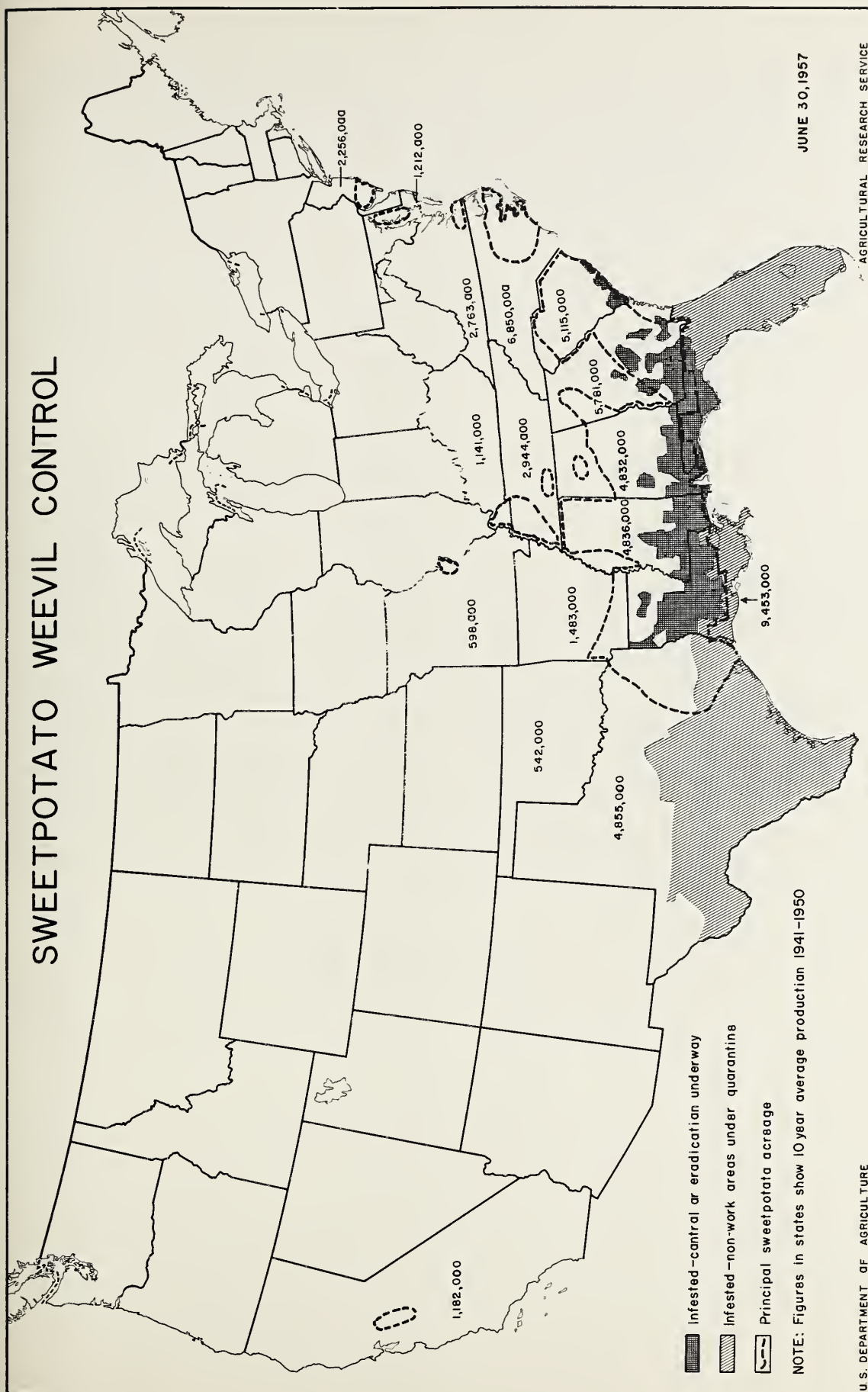


FIGURE 19



12. White-fringed beetle control.

- a. Intensified survey provides basis for re-evaluating control measures. As a result of the intensified survey during the past season, 97,300 new infested acres were found. This increase is considerably higher than that reported annually for previous years and in part represents the inclusion of lands lying in the periphery of known infestations in the generally infested areas of Alabama, Florida and Mississippi, and of lands lying between such infestations. The current program is aimed at the treatment of infestations lying outside the generally infested areas while continuing to apply suppressive measures within the areas. Figure 20 shows the areas involved.
- b. Treatment of land with soil residual insecticides continues effective. In 1957, 24,743 acres were soil treated, and foliage sprays were applied to an aggregate of 60,000 acres. Soil treatments, supported where required by the annual application of environs foliage sprays, have demonstrated the possibility of eradicating the beetle on agricultural, industrial and other types of land. As a result of such treatments over the past several years no white-fringed beetles have been found for three or more years on 170,000 of the 604,564 acres on which infestation has been found.

13. Additional burrowing nematode infestations found in Florida.

Surveys for the burrowing nematode have been carried out in 28 counties in the State of Florida with special emphasis on citrus nurseries. During fiscal year 1957, 326 properties were added to the 1,572 infested properties found previously. These new properties include 109 citrus nurseries, 173 citrus groves, 24 ornamental nurseries and 20 miscellaneous properties. Inspection of citrus nurseries in the State is nearing completion.

A survey of citrus groves and nurseries in other citrus producing States was initiated in fiscal year 1956 and completed during fiscal year 1957. Burrowing nematode infestations were found in 2 greenhouses operated by one owner. Infestations were confined to ornamentals and prompt clean-up measures were initiated by the State.

Florida's tree removal program was temporarily halted when the State Supreme Court ruled that the removal of trees without compensation was unconstitutional. The State Legislature on June 6, 1957, passed a bill providing for compensation. The State Plant Board has conducted control operations in 25 nurseries and 139 groves with a total of 1,286 acres being treated this year.

14. Tests indicate possibility of eradicating European chafer at incipient infestation points. Beginning in 1955, isolated infestations of European chafer have been treated with insecticide in West Virginia, Connecticut and New York. A few adult chafers were found at Meriden, Connecticut, but none was collected during survey operations in 1957 in West Virginia, or in Buffalo, Elmira, Niagara Falls, and Oswego, New York. Traps operated in 14 bordering or exposed States failed to reveal any extension of infestations.

Additional chemicals were tested during the season when adult beetles were in flight in an effort to discover a more efficient bait for traps. Cooperative tests are under way to develop effective foliage sprays to be used for reducing adult populations along main travel arteries and for use in combination with soil treatments to eliminate isolated or incipient infestations.

A series of specific chemical treatments designed to render plants or soil eligible for certification was approved in the spring of 1957. Areas found infested near Syracuse, New York, have now been included under the Federal quarantine. Regulated industries spent an estimated \$50,000 for quarantine compliance during the past year.

15. Grasshopper and Mormon Cricket Control.

- a. Surveys and plans for grasshopper control. Egg and adult surveys in the fall of 1956 showed heavy egg deposition and adult populations on more than 22 million acres of rangeland in 15 Western States and 13 million acres of cropland in 17 states reporting. Rangeland species were most abundant in California, Montana and Wyoming followed closely by Utah, Oregon and Nevada. Principal areas of cropland infestations were in North Dakota, Nebraska, Kansas, and California. Seriousness of both types of infestations was greatly reduced by unprecedented rainfall. Outlook maps for 1958 are now being prepared based on adult and egg surveys conducted in the fall of 1957.
- b. Cooperative control programs in 11 Western States. On cropland, farmers carried out control with technical assistance and direction from State and Federal employees. During the 1957 season, 1,738,651 acres of rangeland were treated in a State-Federal cooperative program in 11 Western States. Greatest acreage treated was in Montana with 651,604 followed by Wyoming with 442,898, California with 167,839 and New Mexico with 121,614. (See Figure 21 for location and size of areas sprayed.)

WHITE-FRINGED BEETLE CONTROL

White-fringed beetles feed on many species of plants, including such important crops as corn, cotton, alfalfa, lespedeza, peanuts, sweetpotatoes, sugarcane, and tobacco. Beetles can adapt themselves throughout much of the U.S.

Acreage infested totals — 610,466

Acreage on which no beetles have been found for three or more years following prescribed treatments — 170,000

■ COUNTIES IN WHICH INFESTATION OCCURS

ISOLATED
INFESTATION

JUNE 30, 1957
AGRICULTURAL RESEARCH SERVICE

FIGURE 20

LOCATION AND SIZE OF AREAS COOPERATIVELY TREATED MAY-SEPTEMBER 1957





c. Mormon cricket populations remain static. In 1957, 73,916 acres of rangeland were treated to control Mormon crickets. This compares with 55,747 acres in 1956. In addition to the work done, some two million acres of threatening infestation, principally in Montana, were surveyed and mapped although no organized cooperative control was undertaken. This uncontrolled infestation will be kept under observation during 1958 and control applied if necessary. A portion of the remaining infested area coincides with current grasshopper outbreaks. However, the spray used to control grasshoppers is not as effective for Mormon crickets as bait.

16. Khapra beetle eradication reaches mop-up stage of scattered infestations. From July 1, 1956, to October 22, 1957, over 12,000 properties were inspected in 11 Western States plus more than 17,500 repeat inspections. No established infestations were discovered outside of California, Arizona, New Mexico and Mexico. Of 99 infestations found in that period, 9 were properties on which treatment apparently was not fully successful and 9 were reinfestations due to receipt of infested material. Fumigation of known infested premises progressed satisfactorily. The following table reflects the work as of October 22, 1957 since the initiation of the program in 1955.

State	Infested		Treated		Remaining	
	No. Prop.	Cu. Ft.	No. Prop.	Cu. Ft.	No. Prop.	Cu. Ft.
California	312	80,494,481	291	79,383,577*	13	1,110,904
Arizona	163	47,150,964	161	46,791,012	2	359,952
New Mexico	6	440,900	6	440,900	0	0
Republic of Mexico	48	11,696,639	48	11,696,639	0	0
Total	529	139,782,984	506	138,312,128	15	1,470,856

* Includes 8 sites not released and volume of retreated sites.

Recent infestations are in sites of relatively small volume and in some instances occur in retail establishments. Because of their small size, the wrapping of the storage facilities is less complex. Locating light infestations at this stage of eradication is much more difficult because populations have not had sufficient time to build up to a discovery level. (Map of infestations, Figure 22).

17. Mediterranean fruit fly nears eradication through Federal-State efforts. Surveys, chemical treatments, and regulatory measures have served to eliminate or drastically reduce fly populations in all infested areas; thus bringing the goal of eradication in sight. The declining number of adults caught as the control program progressed reflects the effectiveness of the spray program. (See Figure 23).

In June 1956, 4,100 traps were in operation and 3,000 flies per 1,000 traps were captured in a day. In June 1957, 48,658 traps were in operation and only 34 flies were captured during the entire month. The trap surveys have been supplemented by an intensive fruit-cutting operation designed to determine the presence of larvae in fruit particularly in calamondin, peaches, kumquats, and similar preferred hosts. In Alabama, Georgia, Louisiana, Mississippi, South Carolina and Texas, 1,266 traps have been in continuous operation with negative results. Trap surveys in California, in selected areas, have also proved negative.

Timely development of effective synthetic lures, ENT-21478 and ENT-21486, proved extremely valuable in view of the world-wide shortage and high cost of oil of angelica seed, originally used as a trap bait. Plastic traps were substituted for glass traps because of their greater efficiency.

18. Soybean cyst nematode found in four additional states.

The soybean cyst nematode was discovered in New Hanover County, North Carolina, in the summer of 1954 following a report by a grower who had experienced progressively reduced yields over a period of several years. Delimiting surveys were carried out in that State and survey work was extended to other important soybean producing areas of the country.

The nematode was found in Tennessee in November 1956 and subsequently in Missouri, Arkansas, Kentucky, and Mississippi. The exact source and time of introduction of the soybean cyst nematode into this country is not known but it is believed to have been here a number of years. The infestations that have been found to date are the only ones that are known in the Western Hemisphere.

The Federal soybean cyst nematode quarantine was invoked on July 26, 1957, to regulate the movements of host materials, commodities, or anything that constitutes a hazard of spread. The affected States are developing parallel State quarantines. The quarantines and regulations are designed to contain the infestations of the soybean cyst nematode to the areas where it is now known to occur.

KHAPRA BEETLE ERADICATION

The khapra beetle has been found damaging wheat, barley, rye, flax, peas, alfalfa, and sorghum in this country. It is known also to attack maize and rice. More than 6 billion bushels of these crops are produced annually in the United States. All of this grain or seed is placed in storage on or off the farm at some time before it is consumed. This insect, which builds up rapidly and resists ordinary control measures, has a high potential for spread to storage facilities throughout the United States.

Infestation found in warehouses, mills, and farm storages in 29 counties.

AREAS OF KNOWN INFESTATION

505 PROPERTIES INFESTED (U.S. & Mexico)
(140 million cu. ft. of storage volume)

475 PROPERTIES TREATED (U.S. & Mexico)
(130 million cu. ft. of storage volume)

Note: NUMBERS (Above line=sites infested, below line=sites treated)

296
281

6
5

155
145

48
44

JUNE 30, 1957

FIGURE 22



MEDITERRANEAN FRUIT FLY ERADICATION AND REGULATORY PROGRAM

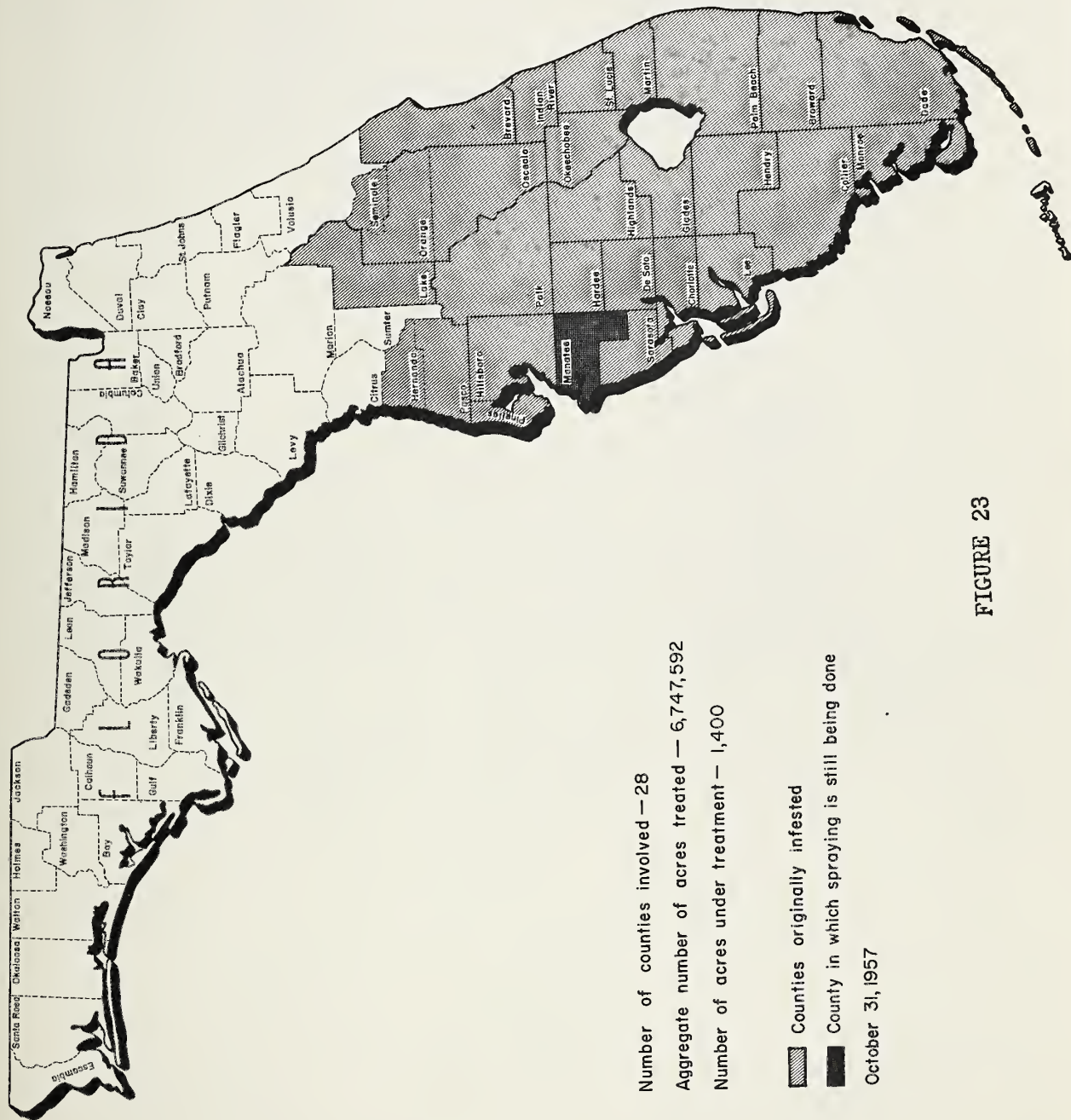


FIGURE 23



Surveys are continuing in an effort to delimit the known infestations and to determine the presence of the soybean cyst nematode in other soybean-producing areas. (See Figure 24).

The status of infestations as of October 15, 1957, is as follows:

State	No. of Counties	No. of Properties	Total Acres
Arkansas	2	89	1,841
Kentucky	1	7	275
Mississippi	1	1	300
Missouri	3	61	2,640
North Carolina	3	99	1,998
Tennessee	4	101	6,658
Total	14	358	13,712

19. Witchweed found parasitic on corn in the United States.

In the late summer of 1956 damage to corn in North Carolina was recognized as being caused by an introduced species of a parasitic weed of the genus Striga. Thereafter, the weed was found in adjoining counties of South Carolina. This parasite, known to affect corn and many other members of the grass family, belongs to a genus known to be extremely damaging to such crops in Africa and certain parts of Asia. Symptoms on corn resemble those produced by acute drought and the plants become stunted, wilted and yellowish. Limited acreages of corn in some infested fields in the Carolinas were a complete failure in 1956.

The total acreage is approximately 50 percent in idle land and 50 percent in cultivated land. The percentage distribution of the crops on the infested cultivated land is as follows: corn, 31 percent; small grain, 31 percent; cotton, 10 percent; soybeans, 8 percent; tobacco, 8 percent; and the remaining 12 percent is in sweetpotatoes, vegetables, peanuts, hay, etc. Tobacco is the most valuable cash crop of the affected counties.

Beginning in 1956, surveys through December 6, 1957, show a total of 190,821 acres with infestation in 17 counties of North and South Carolina, distributed as follows by counties: In North Carolina -- Bladen, 19,507; Columbus, 18,746; Cumberland, 10,401; Duplin, 924; Harnett, 1,231; Hoke, 7,814; Pender, 343; Richmond, 400; Robeson, 57,982; Sampson, 6,514; Scotland, 2,893; In South Carolina -- Darlington, 270; Dillon, 30,974; Florence, 4,197; Horry, 10,281; Marion, 11,881; Marlboro, 6,463, Figure 25 shows known distribution of witchweed.

SOYBEAN CYST NEMATODE

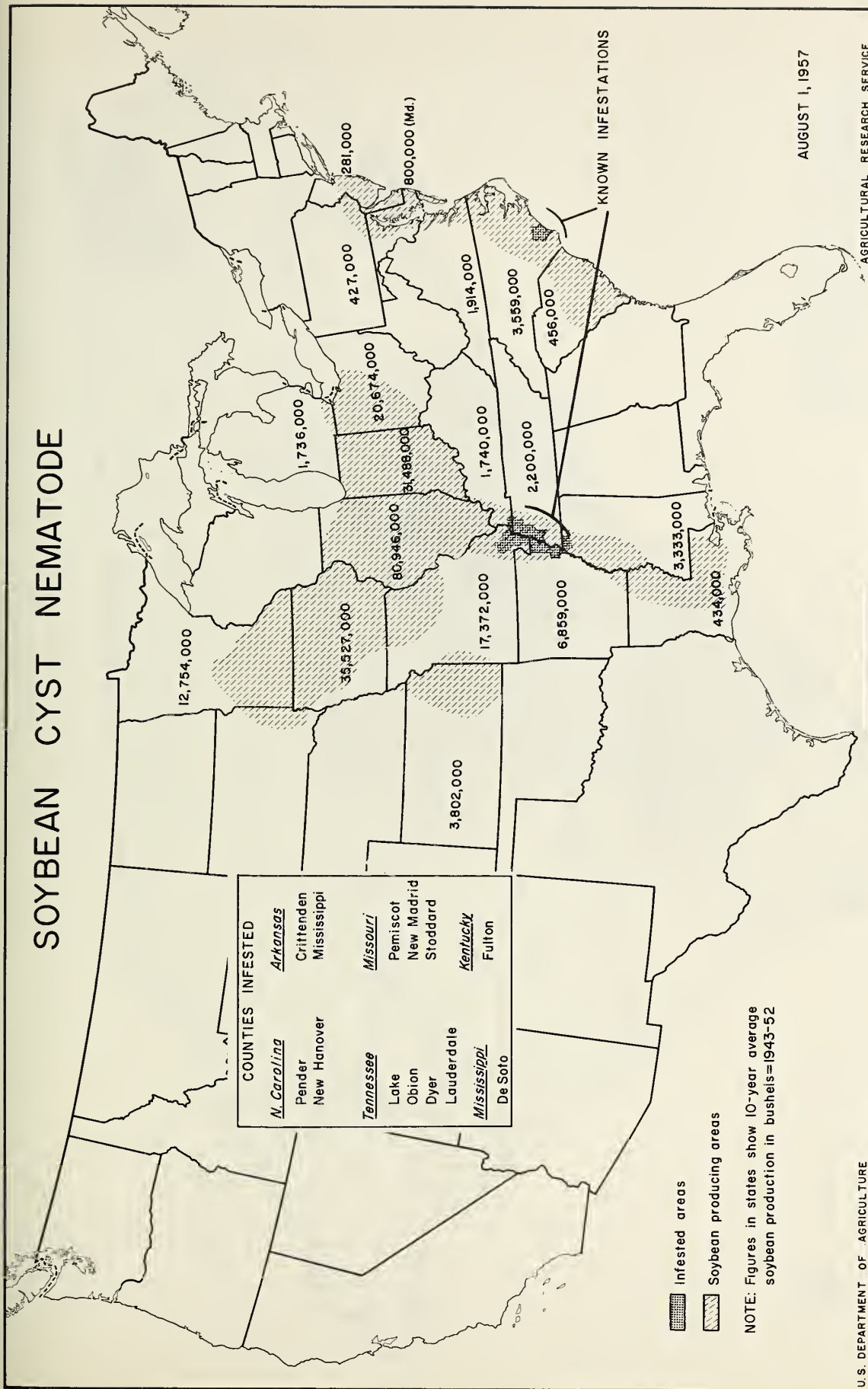


FIGURE 24



Map of South Carolina showing infested and survey areas for the plant pest. The map includes county names and a legend.

Legend:

- Infested areas (Solid black)
- Areas of survey (Hatched)

Counties shown: Aiken, Allendale, Bamberg, Beaufort, Berkeley, Bladen, Calhoun, Charleston, Chester, Chesterfield, Colleton, Darlington, Edgefield, Florence, Georgetown, Greenville, Horry, Jasper, Kershaw, Lancaster, Lexington, Marion, McCormick, Marlboro, Mecklenburg, Milledgeville, Monroeville, Newberry, Orangeburg, Oconee, Ogeechee, Oleton, Pickens, Richland, Saluda, Sumter, Union, York.

Prepared in Plant Pest Survey Section, PPC, ARS, USDA, from records to December 6, 1957.

FIGURE 25

 Infested areas
 Areas of survey

FIGURE 25



20. Imported fire ant program gets under way. Eradication of the imported fire ant is under way. The ant is known to infest six counties of East Texas, about half of Louisiana and Mississippi, two-thirds of Alabama, 14 counties of Florida, portions of 32 counties in Georgia, four in South Carolina and one in Arkansas.

Objectives of the imported fire ant program are (1) to prevent further spread of the insect through application of regulatory measures and (2) to progressively reduce infested acreage through the use of the most effective measures for eradication. Spotted infestations outside the generally infested area will receive first attention. State and local ant eradication committees have been organized and the work is progressing as a joint Federal-State-local effort.

21. Hoja Blanca disease of rice found in Florida. A destructive virus disease of rice was found in the fall of 1957 in several rice fields near Belle Glade, Florida. For several years the disease has been under observation by the Department in Cuba and Venezuela, where it has been known to reduce yields by as much as 50 percent. To kill suspected vectors, the Department and the Florida State Plant Board applied an insecticide on infected rice and other plants in an area of about 2,460 acres. The plants were then chopped and plowed under in an effort to eradicate the disease. Subsequent surveys have failed to locate further infections. Varieties of rice grown extensively in the United States are susceptible to the virus. Surveys will be continued in planted fields and in volunteer rice to determine the extent of the infection in the Florida area. Florida does not have extensive commercial rice plantings.
22. Demands on Contingency Fund for emergency outbreaks of insects and plant diseases much heavier in fiscal year 1957. During fiscal year 1957 a total of \$7,380,000 was made available from the Contingency Fund for plant pest control activities. Table II shows distribution of the monies and programs financed through Contingency Fund releases for fiscal years 1952 through 1957. For fiscal year 1958, \$1,820,000 was appropriated to finance foreseeable plant-pest control programs, which had previously been financed under the Contingency Fund. On this basis the Contingency Fund for fiscal year 1958 is \$1,000,000 to be used in combating unforeseeable incipient and emergency infestations, including unforeseen spread of infestations of pests for which some provision is made in the budget for the current control and eradication programs.

TABLE II

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Releases from the Contingency Fund for Control of Emergency Outbreaks of
Insects and Plant Diseases, Fiscal Years 1952 through 1958 (to 12/31/57)

	1952	1953	1954	1955	1956	1957	1958 to 12/31/57
Contingency Fund:							
Annual appropriation acts	\$1,000,000	\$1,000,000	\$600,000	\$400,000	\$1,000,000	\$4,400,000	\$1,000,000
Supplemental appropriation acts	- -	- -	- -	650,000	650,000	3,450,000	- -
Total appropriations for							
Contingency Fund	1,000,000	1,000,000	600,000	1,050,000	1,650,000	^{a/} 7,850,000	1,000,000
Releases for Control of Emergency							
Outbreaks of Insects:							
Grasshoppers and Mormon							
crickets	144,000	438,700	528,940	284,300	566,000	1,028,000	b/
Burrowing nematode	- -	- -	- -	35,000	150,000	403,000	b/
European chafer	- -	- -	- -	50,000	83,000	80,000	b/
Khapra beetle	- -	- -	- -	156,000	684,000	960,000	b/
Mexican fruitfly	- -	- -	- -	125,000	137,000	135,000	b/
Soybean nematode	- -	- -	- -	- -	30,000	^{a/} 77,000	c/ 110,000
Mediterranean fruit fly	- -	- -	- -	- -	- -	^{a/} 4,675,000	b/
Witchweed	- -	- -	- -	- -	- -	22,000	190,000
Total releases	144,000	438,700	528,940	650,300	1,650,000	7,380,000	300,000
Balance in Contingency Fund ...	^{d/} 856,000	^{e/} 561,300	71,060 ^{f/} 399,700		- -	470,000	700,000

^{a/} Includes \$1,250,000 which was immediately available in fiscal year 1956 for control of Medfly.

^{b/} Provided for under regular projects, fiscal year 1958.

^{c/} \$120,000 provided under regular projects.

^{d/} Includes \$37,800 not required for emergency insect control activities which was transferred to the item for control of vesicular exanthema to meet emergency needs.

^{e/} Includes \$500,000 not required for emergency insect control activities which was transferred to the item for control of vesicular exanthema to meet emergency needs.

^{f/} This balance was transferred, after the close of the fiscal year, to other appropriations to meet retroactive pay act costs pursuant to Public Law 123, 84th Congress.

Plant Quarantine:

1. More thorough baggage inspection gives added protection against foreign pests. Arrangements were made with the Customs Service, effective July 1, 1956, whereby this Department provided \$825,000 for fiscal year 1957 to permit Customs to hire enough additional inspectors to examine all incoming passengers' baggage. The arrangement paid big dividends in protection against the entry of foreign agricultural pests. During fiscal year 1957 a total of 290,742 lots of unauthorized plants and plant products were intercepted at the ports. The majority of this material was taken from passengers' baggage and much of it bore destructive pests not known to occur in the United States. This represented an increase of 18.8 percent over the 244,566 lots intercepted in fiscal year 1956 when "spot check" examination of baggage was practiced at most ports of entry.
2. Destructive foreign pests of many major crops intercepted. Interceptions of destructive plant pests at our borders during fiscal year 1957 included many of the world's most important pests of ornamentals, forests, corn, cotton, fruits, vegetables, and other major crops. Many destructive species were taken on numerous occasions, including the Mediterranean fruit fly - 62 times; citrus canker - 60; black spot of citrus - 131; melon fly - 15; oriental fruit fly - 17; golden nematode - 83; West Indian fruit fly - 166; olive fruit fly - 13; durra stem borer - 10; khapra beetle - 18; and pink bollworm - 42.
3. Export certification at all-time high. One of the most rapidly expanding plant quarantine activities is the inspection and certification of American-grown plants and plant products for exportation. Efforts to dispose of agricultural supplies in this country have heightened interest in foreign markets. During the fiscal year 1957, 48,646 certificates were issued covering 25,410,791 lots of domestic plants and plant products, as compared with 45,470 certificates covering 23,459,525 lots in fiscal year 1956. They were issued at 52 different ports and covered 111 different commodities consigned to 123 different countries.
4. Survey for Mediterranean fruit fly in the West Indies. Finding the Mediterranean fruit fly in Florida in 1956 suggested that the pest might also occur in nearby islands of the West Indies. During the fall of 1956 an extensive survey for the Mediterranean fruit fly was made in the West Indies in cooperation with the islands concerned. The islands surveyed included: Jamaica, Bahama Islands, Cuba, Isle of Pines, Dominican Republic, Puerto Rico, U. S. Virgin Islands, Antigua, St. Kitts, Nevis, Guadaloupe, Martinique and Trinidad. No evidence of the Mediterranean fruit fly was found in any of the areas surveyed.

In addition to establishing the apparent absence of the Mediterranean fruit fly in the islands, the survey yielded other important benefits:

- (a) Information was gained on pest conditions in the West Indies which will be of material value in administering plant quarantine regulations affecting products from that area.
- (b) Local officials were trained in trapping methods, and encouraged to continue the survey. This may serve to forewarn us of the pest's appearance in these nearby islands.
- (c) Agricultural officials of the West Indies were made more conscious of the danger of the introduction of such pests from other parts of the world. Any new pests introduced into the islands would represent an additional threat to this country.
- (d) The excellent relationships developed with officials in the islands will be helpful in co-operative work needed on any future pest problems that may occur.

5. Training emphasized as means of increasing effectiveness of inspection. The continued increase in foreign traffic and the added threat of pest entry associated with it have emphasized the need for an efficient plant quarantine inspection staff. To meet this need, new inspectors recruited during the past year were assigned directly to the Plant Quarantine Training Center in New York, where they were given six-month's intensive training in both the technical and regulatory aspects of plant quarantine enforcement. The benefits of this training were immediately apparent when the new inspectors assumed their regular duties.

Specialized training in nematology, with emphasis on its plant quarantine aspects, was also given during the year to 21 inspectors. This training which will be passed on to their associates, will materially strengthen protection against the entry of injurious nematodes and expedite the handling of suspected importations on the mainland and in Hawaii and Puerto Rico.

6. Interagency planning to cope with rapid expansion of air traffic. Consultations with other government agencies and the airline industry indicate a conservatively estimated annual increase in foreign air travel of 20% or more for the next five years. Heavy increases in air cargo arrivals are expected to continue. Interagency studies, in association with the air carriers, were begun looking to the most effective man-power utilization by the border clearance agencies in order to hold personnel increases to a minimum in planning for this rapidly expanding workload. The close cooperation between Customs and Agriculture inspectors is important in maintaining a defense against pest entry. Adequate training of inspectors likewise is essential.

7. Foreign traffic again sets new record in fiscal year 1957.
The threat of new pests being brought into the country continued to grow more serious in fiscal year 1957 as foreign travel by plane, vehicle and automobile reached new peaks. As shown by the following comparative data, there were also significant increases in other major plant quarantine activities. There is every indication that imports and exports of agricultural products, foreign travel and other possible means of pest entry will continue their upward trend for some years to come.

Plant Quarantine
Workload Data Fiscal Years 1956 Through 1958

	F.Y. 1956	F.Y. 1957	F.Y. 1958 (Estimated)
<u>Inspection:</u>			
Airplanes, approximately 38% carrying unauthorized plant material in 1956 and 1957	97,351	110,944	120,000
Vessels arriving, approximately 30% carrying unauthorized material in 1957	54,712	58,341	62,000
Cargo importations of plant material under permit	77,617	68,861	75,000
Shipments of plants and plant products inspected or treated and certified for movement from Hawaii and Puerto Rico to the mainland	15,407	15,516	16,000
Lots of cut flowers and leis for movement from Hawaii to the mainland	474,645	461,981	475,000
Lots of plant material treated or cleaned	1,715,050	1,969,062	2,100,000
Freight cars from Mexico	101,167	106,355	110,000
Foreign mail parcels	7,500,000(est)	7,779,620	8,000,000
 In cooperation with Customs:			
Vehicles from Mexico	17,262,188	18,453,115	19,500,000
Baggage, airborne, pieces of	5,880,433	7,535,088	10,000,000
Baggage with surface-borne passengers from Mexico	4,640,249	4,787,488	4,900,000
Baggage with ships' passengers, number of pieces	3,116,675	3,281,556	3,500,000
<u>Interceptions:</u>			
Unauthorized plant material, all sources	244,566	290,742	300,000
Lots of insects and plant diseases of plant quarantine significance, all sources	17,504	15,058	17,000
<u>Export certification:</u>			
Lots of domestic plants and plant products exported	23,459,525	25,410,791	27,500,000
Export certificates issued	45,470	48,646	52,000

ANIMAL DISEASE AND PEST CONTROL

Current activities: Measures are devised to exclude from this country communicable animal diseases of foreign origin; to prevent the spread of communicable diseases through interstate shipments of livestock or distribution of impure or impotent veterinary biologics; to control and eradicate livestock diseases; and to maintain, through a marketing agreement with manufacturers and handlers, adequate supplies of hog cholera virus, serum, and vaccine for protection of swine.

Selected Examples of Recent Progress:

Animal Disease Control and Eradication:

1. Progress in tuberculosis eradication program continues:

- a. Tracing procedures to locate infected herds prove successful. Such tracings may stem from animals that show lesions of tuberculosis on post-mortem examination at slaughter plants, those that react to tuberculin tests in herds to which they have been moved, and follow-up on animals that have been exposed to tuberculosis and removed from infected herds. There has been increasing activity in all of these segments of the program.
- b. Method of animal identification and recording of movements through markets improved. The nationwide uniform eartagging plan (a plan of numbering tags to eliminate duplication of numbers) has been adopted in 21 States. Sixteen other States expect to adopt the plan within a short time. Recording systems have been developed in some States whereby a diseased animal can be readily identified by eartag numbers with the herd where the tag was inserted. Other States are considering procedures that will improve their animal identification program and thus facilitate the tracing of diseased animals.
- c. A comparison of funds provided by the Federal Government and cooperating States and counties for the eradication of tuberculosis for the fiscal years 1957 and 1958 follows:

1957		1958		
Federal Government	Cooperators	Federal Government	Cooperators	
Operating funds...	\$1,448,880	\$3,693,589	\$1,636,500	\$4,599,934
Indemnity payments	358,988	869,745	380,000	767,499
Totals	1,807,868	4,563,334	2,016,500	5,367,433

- d. Tables III and IV show the average State and Federal indemnity payments and other data pertaining to the program for control and eradication of tuberculosis:

STATEMENT OF COMPARATIVE TESTING, HERDS AND CATTLE UNDER SUPERVISION, MODIFIED ACCREDITED AREAS
AVERAGE APPRAISAL, SALVAGE, AND STATE AND FEDERAL INDEMNITY IN TUBERCULOSIS ERADICATION WORK
FISCAL YEAR 1935 TO 1957 INCLUSIVE

Fiscal Year	TESTS CONDUCTED		Reactors Found	Per- cent infec- tion	Modi- fied accred- ited areas*	UNDER SUPERVISION		AVERAGE DURING YEAR			
	Herds	Cattle				Herds	Cattle	Appraisal	Salvage	State Indemnity	Federal Indemnity
1935	2,378,668	25,237,532	376,623	1.5	2,428	6,590,863	48,768,627	\$ 57.55	\$ 15.19	\$ 15.87	\$ 18.70
1936	1,944,624	22,918,038	165,496	.7	2,921	6,515,273	59,907,935	77.66	26.50	10.18	22.44
1937	961,109	13,750,308	94,104	.7	3,030	6,745,471	61,640,711	86.04	28.94	12.20	22.72
1938	1,007,586	14,108,871	89,359	.6	3,124	6,471,538	62,640,358	86.76	32.16	16.41	18.12
1939	750,806	11,186,805	60,338	.5	3,142	6,372,720	60,439,030	89.01	34.49	18.96	15.97
1940	819,408	12,222,318	56,343	.46	3,148	6,191,330	61,570,426	91.05	37.12	20.44	16.20
1941	777,435	12,229,499	40,702	.3	3,151	6,235,198	62,696,167	96.50	40.99	20.95	16.48
1942	681,504	10,983,086	28,008	.26	3,151	6,320,006	63,073,213	109.69	50.35	21.49	16.55
1943	563,413	9,308,936	17,167	.18	3,151	6,317,670	63,846,496	135.19	65.03	27.50	18.75
1944	524,927	8,894,466	18,338	.2	3,151	6,153,069	64,519,652	154.53	59.93	36.07	21.72
1945	484,749	8,105,480	19,534	.24	3,151	6,120,528	64,790,921	161.32	59.78	40.31	22.71
1946	505,296	8,454,463	19,464	.23	3,150**	6,035,783	65,981,099	174.20	69.00	37.26	23.89
1947	515,517	8,312,919	16,666	.2	3,150	6,082,666	65,577,421	199.46	83.55	40.81	24.19
1948	523,924	8,294,423	15,943	.19	3,150	6,044,170	66,246,215	234.60	119.74	38.53	23.90
1949	536,162	8,737,501	17,007	.19	3,150	5,985,215	65,419,332	285.78	139.46	37.68	24.72
1950	539,799	9,439,811	17,733	.19	3,150	5,991,703	65,443,353	272.87	123.24	43.40	25.05
1951	503,933	8,847,228	12,353	.14	3,149***	5,808,062	64,824,960	323.70	174.64	43.59	24.92
1952	488,769	9,164,265	10,351	.11	3,149	5,798,865	64,791,861	346.13	174.05	46.15	25.66
1953	463,159	9,675,245	10,811	.11	3,149	5,688,183	67,423,940	309.47	117.31	49.22	26.12
1954	478,975	10,234,665	10,886	.11	3,149	5,681,947	67,937,276	250.92	82.18	43.76	26.60
1955	477,683	9,210,810	11,133	.12	3,149	4,669,733	79,567,058	235.10	77.63	45.24	25.28
1956	418,059	9,220,244	14,363	.15	3,148****	4,645,342	86,869,478	246.52	89.43	39.97	25.60
1957	414,162	8,976,409	13,974	.16	3,150v	4,229,996	85,272,126	255.69	94.06	38.44	25.78

* Includes Puerto Rico and the Virgin Islands.

** Reduction is due to consolidation of two counties.

*** Reduction is due to fact no cattle under supervision in District of Columbia.

**** Reduction is due to consolidation of two counties in South Dakota.

v Increase is due to addition of a new county in New Mexico and also includes Alaska.

TABLE III

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
ANIMAL DISEASE ERADICATION DIVISION

SUMMARY OF BOVINE TUBERCULOSIS ERADICATION IN COOPERATION WITH THE VARIOUS STATES
FISCAL YEAR 1957

State	Herds Tested	Cattle Tested	Infected Premises	Percent Infected	Reactors Found	Percent Reactors
Connecticut	6,545	155,290	56	.08	90	.058
Maine	4,640	65,984	8	.02	18	.012
Massachusetts	9,256	174,647	47	.05	66	.038
New Hampshire	7,028	100,847	5	.01	7	.007
New York	25,685	742,011	254	.10	664	.089
Rhode Island	1,512	25,677	26	.17	32	.125
Vermont	6,318	181,311	25	.04	53	.029
TOTALS AREA 1	60,984	1,445,767	421	.07	930	.064
Delaware	1,941	48,163	17	.09	24	.050
Kentucky	4,678	63,919	17	.36	27	.042
Maryland	10,434	257,663	73	.70	167	.064
New Jersey	7,156	205,412	157	2.19	214	.104
Pennsylvania	27,026	438,894	153	.57	485	.110
Virginia	8,129	216,198	19	.23	42	.019
West Virginia	5,232	57,348	18	.34	50	.087
TOTALS AREA 2	64,596	1,287,597	454	.70	1,009	.078
Illinois	16,364	387,216	322	1.97	531	.137
Indiana	16,250	188,602	361	2.22	834	.442
Michigan	26,444	491,900	2,031	7.68	3,493	.710
Ohio	20,557	270,387	187	.91	267	.099
TOTALS AREA 3	79,615	1,338,105	2,901	3.64	5,125	.383
Iowa	22,777	491,394	577	2.53	780	.159
Minnesota	17,656	292,665	70	0.40	167	.057
Nebraska	1,795	44,867	31	1.73	85	.189
North Dakota	774	20,927	103	13.3	356	1.70
South Dakota	2,867	138,669	42	1.46	70	.050
Wisconsin	35,570	923,020	462	1.30	1,250	.135
TOTALS AREA 4	81,439	1,911,542	1,285	1.58	2,708	.142
Idaho	1,548	19,367	2	.13	2	.010
Montana	1,301	37,357	3	.23	3	.008
Nevada	339	5,301	0	0.0	0	0.00
Oregon	18,558	188,065	24	.13	77	.041
Utah	1,928	12,553	3	.16	3	.024
Washington	1,844	49,334	21	1.14	79	.160
Wyoming	2,563	30,424	3	0.12	3	.010
Alaska	124	2,411	0	0.0	0	0.0
TOTALS AREA 5	28,205	344,812	56	.20	167	.048
Arizona	1,119	37,715	19	1.70	32	.085
California	18,830	813,658	537	2.85	2,271	.279
Colorado	1,372	27,343	5	.36	15	.055
New Mexico	750	21,074	9	1.2	48	.228
Texas	11,932	264,224	118	.99	611	.231
Hawaii	528	28,544	18	3.41	31	.109
TOTALS AREA 6	34,531	1,192,558	706	2.04	3,008	.252
Arkansas	1,670	35,001	13	.78	58	.166
Kansas	11,936	212,985	57	.48	74	.035
Louisiana	2,578	104,093	35	1.36	148	.142
Mississippi	2,107	54,833	10	.47	18	.033
Missouri	10,713	236,189	32	.30	85	.036
Oklahoma	2,809	73,544	22	.78	36	.049
Tennessee	2,561	71,791	21	.82	30	.042
TOTALS AREA 7	34,374	788,436	190	.55	449	.057
Alabama	3,106	62,726	14	.45	23	.037
Florida	2,459	129,064	15	.61	258	.200
Georgia	4,005	140,586	44	1.10	117	.083
North Carolina	13,652	174,427	8	.06	9	.005
South Carolina	2,942	64,035	7	.24	13	.020
Puerto Rico	4,254	96,754	60	1.41	158	.163
TOTALS AREA 8	30,418	667,592	148	.49	578	.087
GRAND TOTALS	414,162	8,976,409	6,161	1.49	13,974	.156

TABLE IV

2. Brucellosis eradication continues to show marked progress.

- a. The brucellosis eradication program continued to make significant progress. A comparison between fiscal years 1956 and 1957 is shown below. Gains were made in 1957 in reduction in percentage of infected herds and cattle. In addition there were increases in numbers of herds tested, in the percentage of reactors slaughtered, and in the number of calves vaccinated.

	<u>F.Y. 1956</u>	<u>F.Y. 1957</u>
<u>Brucellosis ring tests</u>		
Herds tested	1,727,581	1,866,444
Estimated cattle in herds tested	28,361,691	31,481,474
Suspicious herds	255,503	212,580
Percent of suspicious herds	14.8	11.39
<u>Blood tests</u>		
Herds tested	1,154,962	1,170,906
Cattle tested	16,754,195	15,913,396
Infected herds found	156,406	123,964
Percent of infected herds*	13.5	10.6
Reactors found	366,524	280,253
Percent of cattle infected*	2.15	1.76
Reactors slaughtered	327,034	266,594
Percent of reactors slaughtered of those found	89.2	95.1
<u>Calves vaccinated</u>	4,772,535	5,501,445

*Based on results of blood tests only.

- b. Minnesota and Delaware achieve modified-certified brucellosis free status. A total of seven States, including Wisconsin and Washington which were certified during fiscal year 1956, has now been certified since the inception of the accelerated program in fiscal year 1955. Maine, New Hampshire and North Carolina were previously certified and have maintained their certification. Connecticut and Vermont have been certified since July 1, 1957.

There were 235 counties that qualified as modified-certified brucellosis free areas during fiscal year 1957 compared to 121 during fiscal year 1956. Prior to 1955 a total of 379 had been certified making a total of 735 at the end of fiscal year 1957, which represents 23 percent of the counties in the United States compared with 16 percent in 1956.

- c. Reduction in cost of program followed certification. During fiscal year 1957 (the first full year of operations following certification), Washington and Wisconsin showed an average reduction of 59.2 percent in the cost of the program as compared to fiscal year 1956. The infection rate in these States was further reduced from .58 to .32 percent in Washington, and from 1.61 to .29 percent in Wisconsin during 1957.
- d. New regulation minimizes spread of brucellosis through interstate movement of cattle. A new regulation became effective January 1, 1957 which regulates the movement of cattle interstate insofar as brucellosis is concerned. It has received good acceptance by the livestock industry. In many cases the Federal regulation has resulted in enactment of needed supporting State laws regulating the movement of cattle within the various States. To support the regulation, markets and slaughter plants have been approved after meeting certain established minimal standards to receive cattle moving interstate.
- e. This work was financed in the fiscal years 1955 through 1958 by the funds appropriated under this head and by transfers from the Commodity Credit Corporation pursuant to P. L. 690 approved August 28, 1954 as amended by P. L. 465, approved April 2, 1956. The following table compares actual State and Federal expenditures for fiscal years 1955, 1956 and 1957 with estimated State and Federal expenses for fiscal year 1958:

	<u>FY 1955</u>	<u>FY 1956</u>	<u>FY 1957</u>	<u>FY 1958 (estimated)</u>
A. <u>Federal Cost:</u>				
Operating funds	\$10,718,791	\$14,125,249	\$16,576,862	\$17,039,300
Indemnities	4,614,606	6,060,351	4,422,720	4,500,000
Total	15,333,397	20,185,600	20,999,582	21,539,300
Less amount provided under "Salaries and Expenses, ARS"	-3,774,700	-3,961,165	-3,962,400	-4,139,300
Cost of accelerated program (financed by transfers from Com- modity Credit Corporation).....	11,558,697	16,224,435	17,037,182	17,400,000
B. <u>Funds provided by cooperating States and counties:</u>				
Operating funds	9,497,240	11,595,852	12,159,444	13,128,300
Indemnities	1,736,491	4,134,627	3,682,118	3,571,700
Total	11,233,731	15,730,479	15,841,562	16,700,000

Figures 26 and 27 and Tables V to VII show by States the funds made available during the 1957 fiscal year, and other data pertaining to the program.

3. Scabies continues to give concern.

- a. Psoroptic sheep scabies. The following tabulation compares the activities of fiscal years 1956 and 1957:

	<u>F.Y. 1956</u>	<u>F.Y. 1957</u>
Sheep inspected	8,730,339	11,944,196
Sheep dipped	441,713	572,262
Infected sheep located	42,622	57,073
Infected flocks	607	682
States reporting sheep scabies ..	25	24
Counties reporting sheep scabies.	267	289

Program activity continued to increase, partly due to the large number of inspections of flocks under surveillance because of other diseases of sheep. The Department is still being urged by major sheep raisers' associations, State livestock sanitary officials, and others, to strengthen the eradication program. Table VIII shows the total sheep inspected and total dippings under the cooperative Federal-State psoroptic sheep scabies eradication program and Figure 28 indicates the locations where the disease was found.

Sheep scabies quarantines lifted in Louisiana and Mississippi. A long, intensive campaign by State Departments of Agriculture and the United States Department of Agriculture to eradicate psoroptic sheep scabies among flocks in Louisiana and Mississippi has been pronounced successful. The Agricultural Research Service announced the lifting of its scabies quarantines in 4 Louisiana parishes, 12 Mississippi counties and part of a 13th Mississippi county. The quarantines, in effect more than 30 years, were lifted July 8, 1957.

- b. Psoroptic cattle scabies. Psoroptic scabies was diagnosed in cattle in Colorado, Illinois, Iowa, Kansas, Missouri, Ohio, and Wyoming. Federal and State quarantines were placed in Colorado on Bent, Crowley, Las Animas, Otero, Prowers, and a part of Pueblo Counties. The quarantined area was reduced as cattle were inspected and treated and, as of June 30, included all of Crowley County and those parts of Bent, Las Animas, Otero, Prowers, and Pueblo Counties directly involved in outbreaks of the disease. All known infected herds have been treated under supervision, and every effort has been made to trace movements of cattle from these herds and to establish the origin of infection in each case. Figure 29 shows the locations where the disease occurs.

4. The cattle-fever tick eradication program continues active. In 1957 there were 1,931,902 inspections or dippings compared with 1,751,515 in fiscal year 1956. Work continues in the buffer strip along the Texas-Mexico border.

Cattle fever ticks found in Marron Valley, California. In June 1956, cattle-fever ticks were found in Marron Valley, San Diego County. The State hold-order placed on the livestock in the valley was released in June 1957 following eradication of the tick and final dipping of the cattle and horses in the quarantined area. A fence paralleling the Mexican border fence has been constructed across the valley to aid in preventing reinfestations.

Cattle-fever ticks found in Okeechobee County, Florida, in April 1957. As of June 30, 1957, a total of 13 infested premises was reported and State quarantines have been placed on Okeechobee, Broward, Palm Beach, and a part of Dade County, as well as on 100 exposed herds in other areas. Experienced State and Federal inspectors have been assigned to the eradication project. More than 30 employees are now engaged in eradicating the infestation. Dippings and inspection of all herds are progressing well.

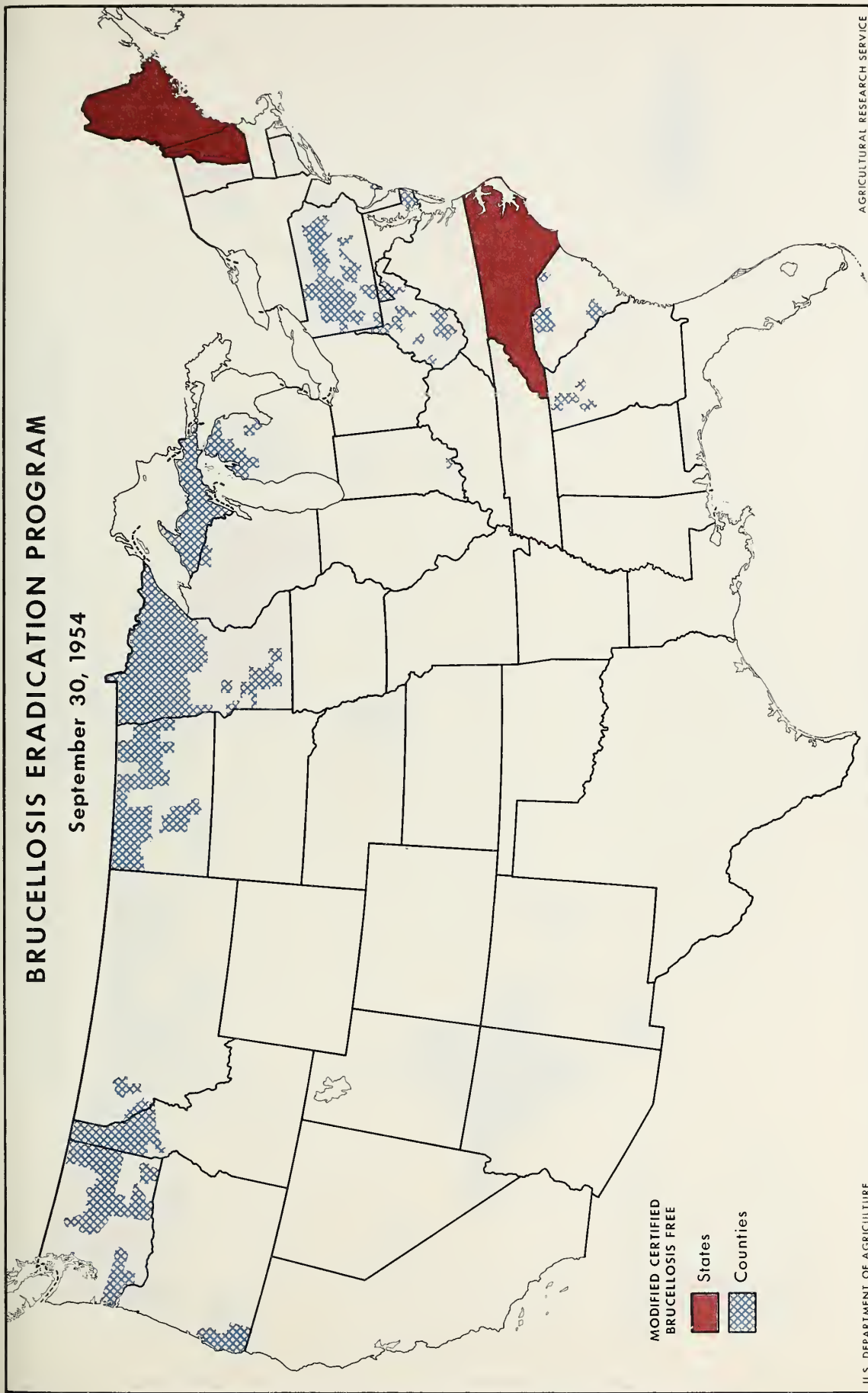
5. Screwworm eradication program started. Administrative headquarters for the screwworm eradication project are being established at Sebring, Florida, where the State has acquired facilities which are being remodeled for the rearing and sterilization of screwworm flies, as well as for the headquarters office. The established fly-production research facilities located at Orlando, Florida, are being used for training new personnel and testing supplies, equipment, and procedures. These facilities were used to rear flies for a pilot-plant operation on 2,000 square miles southeast of Orlando, Florida, during the summer of 1957. It is anticipated that full scale eradication efforts which entail the weekly rearing and releasing of 50 million screwworm flies, sterilized by atomic radiation, will be under way at Sebring by midsummer 1958.

As its share of the eradication program for fiscal years 1958 and 1959, Florida will contribute a total of \$3,000,000.

6. Diagnosis, control, and eradication of special diseases actively continued.
 - a. Sheep under surveillance for scrapie. Scrapie was diagnosed last year in 12 flocks in 12 counties of the States of Alabama, California, Illinois, Indiana, North Carolina, and Utah. At present all known infection has been eradicated. Approximately 1,705 flocks are under surveillance, totaling 594,675 sheep.

BRUCELLOSIS ERADICATION PROGRAM

September 30, 1954



MODIFIED CERTIFIED
BRUCELLOSIS FREE

States

Counties

FIGURE 26

BRUCELLOSIS ERADICATION PROGRAM

SEPTEMBER 30, 1957

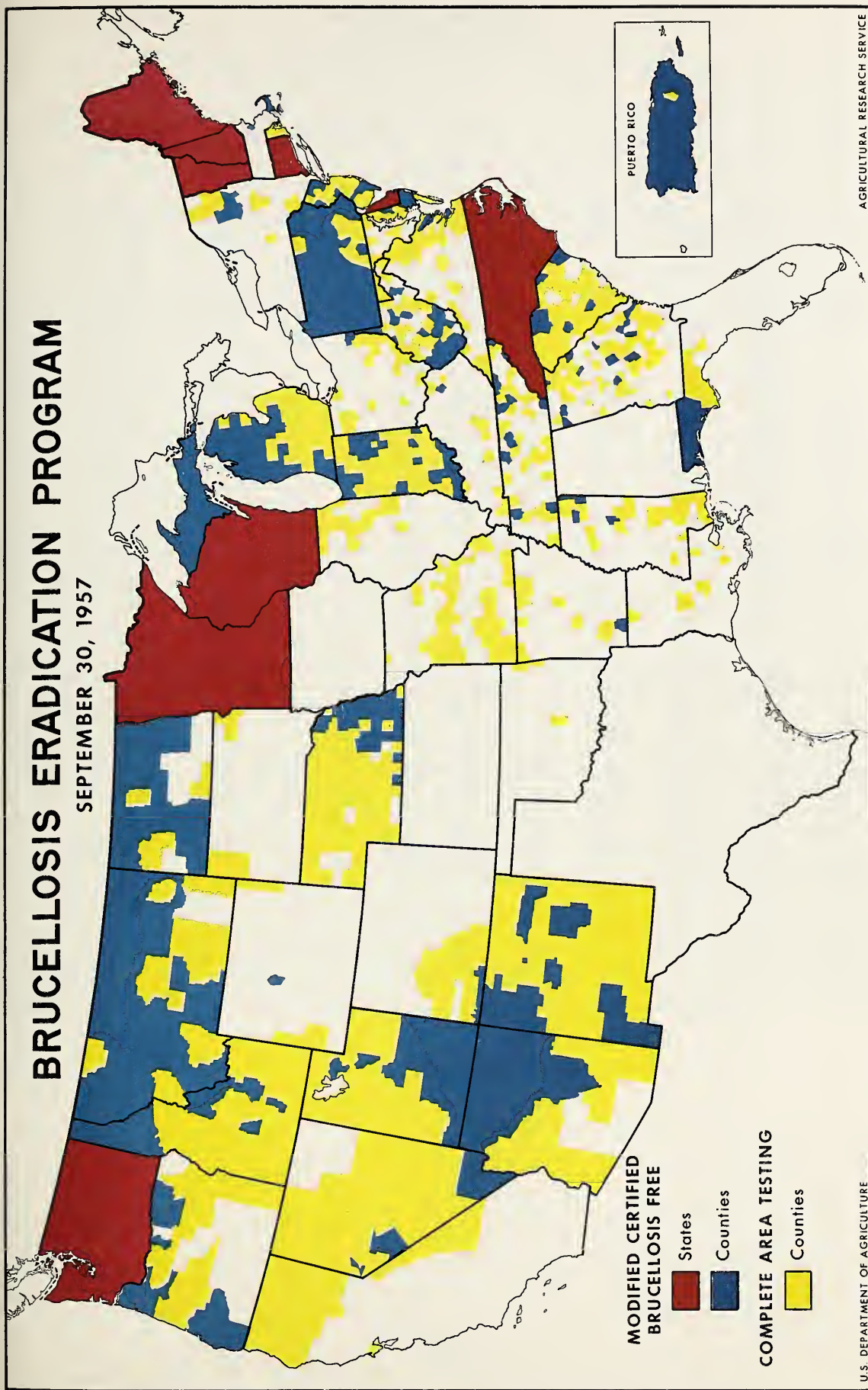


FIGURE 27

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
ANIMAL DISEASE ERADICATION DIVISION

SUMMARY OF BOVINE BRUCELLOSIS ERADICATION IN COOPERATION WITH THE VARIOUS STATES

FISCAL YEAR 1957

State or Territory	BRUCELLOSIS BLOOD TESTS AND CALFHOOD VACCINATIONS							BRUCELLOSIS RING TESTS				
	Herds Tested	Cattle	Infected Herds		Reactors		* Reactors Held	Calves Vaccinated	Herds Tested	Estimated Cattle Represented	Suspicious Herds	Estimated Negative Cattle
			Number	** Per- cent	Number Found	** Per- cent						
Connecticut	8,698	133,858	481	3.4	749	0.35	572	17,137	6,068	95,209	811	82,378
Maine	4,827	64,668	240	1.7	352	0.15	0	10,233	9,048	165,105	86	162,819
Massachusetts	7,580	102,610	545	4.6	821	0.45	142	17,357	6,658	122,092	2,315	80,845
New Hampshire	6,469	85,183	37	0.5	73	0.08	0	10,074	678	9,968	27	9,268
New York	27,257	477,615	7,609	7.8	12,959	0.76	11,314	256,410	85,192	1,484,783	14,814	1,229,756
Rhode Island	1,155	25,261	187	11.6	418	1.27	8	2,144	618	12,360	161	7,540
Vermont	10,442	241,602	2,299	8.1	5,504	0.64	138	57,088	22,750	774,084	4,701	614,353
TOTALS AREA 1	66,428	1,130,797	11,398	6.5	20,876	0.63	12,174	370,443	131,012	2,663,601	22,915	2,186,959
Delaware	2,275	39,813	72	1.6	106	0.12	0	5,625	2,489	54,911	160	51,198
Kentucky	25,509	286,028	3,596	5.3	8,165	1.08	1,162	46,354	54,705	610,014	12,617	472,568
Maryland	20,661	353,534	845	3.7	1,407	0.36	0	50,869	2,351	44,933	273	37,009
New Jersey	8,228	209,154	1,044	10.8	2,127	0.81	19	15,779	1,671	61,252	250	52,823
Pennsylvania	61,548	908,469	4,870	4.0	7,890	0.47	4	124,001	61,756	793,704	822	783,790
Virginia	23,318	329,036	1,773	4.5	3,054	0.56	0	80,392	18,979	248,242	2,220	211,801
West Virginia	14,235	173,610	509	2.8	1,311	0.56	0	12,198	3,725	61,479	69	59,766
TOTALS AREA 2	155,774	2,299,644	12,709	4.5	24,060	0.61	1,185	335,218	145,676	1,871,535	16,411	1,669,035
Illinois	61,959	569,420	3,981	2.9	8,473	0.66	422	144,589	81,719	746,150	4,395	707,019
Indiana	52,072	785,930	6,904	4.8	13,733	0.85	0	62,874	95,743	978,721	4,746	821,944
Michigan	50,757	465,063	5,704	6.6	14,206	1.55	3,953	61,303	39,665	496,399	3,969	453,072
Wisconsin	34,075	299,360	2,982	2.9	7,166	0.63	2,603	61,606	76,577	910,926	6,761	829,232
TOTALS AREA 3	198,863	2,119,773	19,571	4.1	43,578	0.88	6,978	327,372	293,704	3,132,196	19,871	2,811,264
Iowa	37,558	381,327	6,057	3.1	13,496	0.53	0	220,441	191,069	2,469,972	22,210	2,194,199
Minnesota	64,216	1,357,146	7,171	2.9	14,932	0.29	6,313	163,361	193,478	3,969,265	8,201	3,801,663
Nebraska	32,017	371,277	2,666	2.2	5,541	0.41	1	422,662	91,611	1,031,381	3,305	999,259
North Dakota	21,280	466,622	2,843	8.0	10,802	1.52	441	102,182	14,555	247,638	247	243,042
South Dakota	14,672	223,532	2,884	5.3	9,125	1.01	1,796	256,684	45,418	706,271	5,352	675,637
Wisconsin	37,852	800,339	7,820	3.3	14,137	0.29	0	485,035	215,607	4,377,404	15,905	4,056,523
TOTALS AREA 4	207,602	3,600,243	29,444	3.3	68,033	0.44	8,551	1,650,665	751,738	12,802,431	55,220	11,954,323
Idaho	9,582	161,282	1,388	3.4	2,817	0.45	0	135,184	34,123	511,845	3,352	461,565
Montana	13,226	312,446	1,103	8.2	2,950	0.93	2,791	293,482	300	3,900	25	3,575
Nevada	1,340	38,070	138	7.8	386	0.77	266	69,384	424	12,204	5	12,144
Oregon	30,871	377,527	1,009	3.3	2,742	0.73	0	111,298	0	0	0	0
Utah	12,606	119,877	851	3.1	2,008	0.76	71	79,246	14,949	149,384	524	144,251
Washington	9,369	180,630	578	2.0	1,473	0.32	0	93,056	20,464	306,960	1,565	283,485
Wyoming	3,320	80,844	351	4.7	1,005	0.70	0	170,798	4,376	65,640	153	63,445
Alaska	99	1,475	0	0.0	0	0.00	0	184	51	842	0	842
TOTALS AREA 5	80,413	1,272,091	5,448	3.5	13,381	0.60	3,128	952,632	74,687	1,050,775	5,624	969,204
Arizona	5,228	109,990	277	4.8	681	0.49	169	12,717	653	39,133	152	27,876
California	8,600	74,523	801	8.9	2,004	1.65	0	351,675	752	53,897	326	46,689
Colorado	10,085	85,600	587	1.8	1,048	0.26	267	87,308	23,867	329,726	775	314,011
New Mexico	10,368	179,556	299	2.1	932	0.36	0	57,834	4,153	80,062	156	76,899
Texas	14,071	104,281	1,357	6.5	3,965	1.56	0	130,813	18,099	512,650	10,813	149,337
Hawaii	0	0	0	0.0	0	0.00	0	0	0	0	0	0
TOTALS AREA 6	48,352	553,950	3,321	4.0	8,630	0.74	436	640,347	47,524	1,015,468	12,222	614,812
Arkansas	14,005	189,693	2,677	6.7	6,625	1.26	287	99,193	33,703	443,443	7,868	337,591
Kansas	20,438	230,440	2,993	4.0	5,729	0.30	0	180,596	62,991	1,934,194	8,879	1,668,907
Louisiana	21,132	392,003	5,757	23.0	19,843	4.20	201	101,829	7,779	159,848	3,924	80,901
Mississippi	33,726	423,281	3,472	5.6	8,423	0.73	155	120,674	33,214	883,220	4,924	76,210
Missouri	83,842	989,774	8,691	4.4	18,087	0.82	0	246,231	131,633	1,501,042	16,559	1,218,736
Oklahoma	13,821	199,373	2,782	7.3	6,272	0.95	1,531	113,426	29,500	553,655	5,041	461,314
Tennessee	53,713	522,809	5,649	5.9	10,935	1.09	268	129,543	64,973	806,294	23,605	483,179
TOTALS AREA 7	240,677	2,947,343	32,021	6.0	75,914	0.96	2,442	991,492	363,793	6,282,096	70,800	4,986,838
Alabama	34,378	383,048	3,004	6.4	7,750	0.98	114	70,413	15,597	502,814	2,863	411,801
Florida	17,183	263,391	925	4.6	3,760	0.73	0	89,902	6,936	1,241,130	3,942	252,294
Georgia	47,443	608,358	4,227	8.0	9,639	1.05	587	40,469	7,604	424,724	2,095	307,402
North Carolina	33,939	277,092	325	0.6	639	0.11	2	3,000	21,595	331,416	175	328,351
South Carolina	12,971	159,898	475	2.6	1,111	0.42	17	16,089	5,702	114,944	301	106,290
Puerto Rico	27,183	297,768	1,129	4.0	2,882	0.35	258	13,403	876	48,304	144	44,631
TOTALS AREA 8	172,797	1,989,555	10,085	4.5	25,781	0.75	982	233,276	58,310	2,663,372	9,517	1,447,769
GRAND TOTALS	1,170,906	15,913,396	123,964	4.4	280,253	0.66	35,876	5,501,445	1,866,444	31,481,474	212,580	26,640,204

* Included in non-vaccinated reactors found.

** Percent of herd and cattle infection in states conducting Brucellosis Ring Tests calculated on basis of total blood tests and BRT negative herds and cattle.

TABLE V



STATEMENT OF COMPARATIVE TESTING, HERDS AND CATTLE UNDER SUPERVISION, AVERAGE APPRAISAL, SALVAGE,
AND STATE AND FEDERAL INDEMNITY IN BRUCELLOSIS ERADICATION WORK
FISCAL YEAR 1935 TO 1957 INCLUSIVE

Fiscal Year	TESTS CONDUCTED		Reactors Found	Reactors Held	Per- cent Infec- tion	UNDER SUPERVISION		AVERAGE DURING YEAR			
	Herds	Cattle				Herds	Cattle	Appraisal	Salvage	Paying States	1/ State Indemnity
1935	212,482	3,317,760	381,010	-	11.5	187,109	2,936,347	\$56.86	\$19.87	1	\$27.99
1936	470,788	6,674,709	457,104	-	6.8	449,644	5,780,418	70.65	27.44	2	20.57
1937	630,917	8,021,167	397,864	-	5.0	719,452	7,877,612	70.67	27.94	5	19.25
1938	671,310	7,837,443	324,532	-	4.1	1,035,454	9,447,137	80.37	32.07	10	20.36
1939	724,613	7,591,398	219,165	-	2.9	1,372,410	11,111,643	97.17	33.97	28	26.09
1940	590,393	6,937,428	171,953	-	2.5	1,615,755	12,315,329	90.85	34.99	36	17.12
1941	677,544	7,465,254	182,075	-	2.4	1,883,914	13,932,693	93.28	37.68	40	17.19
1942	591,835	6,891,219	209,238	-	3.0	2,105,294	15,627,027	99.19	52.06	41	17.71
1943	392,636	5,185,228	197,329	39,586	3.8	2,199,535	16,616,522	128.03	64.87	40	18.63
1944	386,266	5,235,912	226,079	53,558	4.3	2,254,235	17,326,138	143.34	59.75	40	22.54
1945	395,236	5,213,458	243,050	75,499	4.7	2,307,585	17,545,638	139.35	56.63	40	22.14
1946	389,814	4,876,866	245,786	86,738	5.0	2,360,699	17,870,154	149.65	68.64	40	22.07
1947	454,789	5,133,814	232,293	74,922	4.5	2,249,118	17,589,018	178.25	82.93	40	23.44
1948	533,936	5,434,792	232,199	68,977	4.3	2,291,760	18,128,318	203.98	107.38	39	24.44
1949	563,501	5,671,347	226,691	68,653	4.0	2,165,364	17,126,480	256.46	132.11	37	25.67
1950	618,801	5,974,721	208,298	66,351	3.5	2,299,556	18,527,624	237.68	114.21	31	25.16
1951	565,155	5,640,836	172,322	60,686	3.1	2,324,621	19,197,790	326.85	189.45	22	23.47
1952	670,738	7,491,327	314,260	60,418	4.2	2,149,078	21,496,113	334.68	189.39	25	26.03
1953	660,344	7,860,870	268,348	179,101	3.4	2,102,545	21,607,676	276.52	122.52	25	25.59
1954	696,207	9,002,109	235,666	149,628	2.6	2,298,284	24,572,013	190.90	89.18	26	20.64
1955	984,541	14,186,241	365,247	80,672	2.6	2,585,277	31,948,708	189.36	87.38	42	20.85
1956	1,154,962	16,754,195	366,524	62,435	*1.25	2,737,483	42,582,071	203.63	84.58	42	22.33
1957	1,170,906	15,913,396	280,253	55,312	*0.66	2,697,184	50,858,016	201.29	84.98	44	19.64

1/ During period May 1, 1929 to Oct. 8, 1954, Federal indemnity payment limited to not to exceed total amount paid by cooperating State agencies. Includes Puerto Rico.

2/ Federal indemnity for the period Sept. 23, 1953 to Oct. 8, 1954 was limited to \$9.00 for grade and \$18.00 for purebred animals.

3/ Effective Oct. 8, 1954 the requirement that states match Federal indemnity payments was rescinded, and maximum payments were again raised to \$25.00 and \$50.00.

* Percent of infection in States conducting Brucellosis Ring Tests calculated on basis of total blood tests and total BRT negative tests for the last six months.

** Percent of infection in States conducting Brucellosis Ring Tests calculated on basis of total blood tests and total BRT negative tests for Fiscal Year 1957.



Brucellosis Eradication

Fiscal Year 1957

State	FEDERAL			STATE		
	Indemnity Payments	Operating Cost	Total	Indemnity Payments	Operating Cost	Total
Alabama	\$125,125	\$445,621	\$569,746	-	\$100,000	\$100,000
Arizona	7,546	120,224	127,770	10,000	37,450	47,450
Arkansas	150,250	385,439	535,689	-	60,000	60,000
California	6,475	230,911	237,386	-	367,370	367,370
Colorado	9,658	105,531	115,189	-	33,134	33,134
Connecticut	4,041	66,635	70,676	-	149,540	149,540
Delaware	4,389	23,737	28,126	18,000	37,160	55,160
D.C. & Regional						
Business Offices	-	1,385,202	1,385,202	-	-	-
Florida	36,330	352,259	388,589	87,531	182,755	270,286
Georgia	116,311	571,360	687,671	155,520	256,567	412,087
Idaho	68,899	280,730	349,629	1,000	100,500	101,500
Illinois	160,242	213,667	373,909	-	1,190,034	1,190,034
Indiana	267,166	484,533	751,699	-	661,124	661,124
Iowa	156,127	668,363	824,490	250,000	544,000	794,000
Kansas	-	398,394	398,394	-	190,000	190,000
Kentucky	110,304	208,458	318,762	-	350,000	350,000
Louisiana	514,463	342,495	856,958	858,000	559,779	1,417,779
Maine	10,643	49,065	59,708	21,000	90,000	111,000
Maryland	47,580	316,921	364,501	152,000	145,035	297,035
Massachusetts	17,199	157,744	174,943	20,000	103,000	123,000
Michigan	227,973	456,745	684,718	5,000	340,228	345,228
Minnesota	132,996	799,020	932,016	97,000	547,000	644,000
Mississippi	186,121	476,851	662,972	-	131,500	131,500
Missouri	207,179	963,307	1,170,486	257,180	455,670	712,850
Montana	-	412,140	412,140	-	250,000	250,000
Nebraska	131,610	744,732	876,342	75,000	235,000	310,000
Nevada	7,236	117,622	124,858	-	30,900	30,900
New Hampshire	2,318	39,968	42,286	13,000	74,500	87,500
New Jersey	48,674	114,212	162,886	178,000	119,405	297,405
New Mexico	15,342	221,632	236,974	12,000	28,000	40,000
New York	-	220,450	220,450	-	1,105,296	1,105,296
North Carolina	15,183	174,722	189,905	15,000	112,482	127,482
North Dakota	208,202	201,068	409,270	-	180,000	180,000
Ohio	-	241,092	241,092	-	335,200	335,200
Oklahoma	1,750	345,037	346,787	-	80,500	80,500
Oregon	79,404	269,686	349,090	72,000	163,500	235,500
Pennsylvania	232,372	421,154	653,526	650,000	650,000	1,300,000
Rhode Island	7,141	14,777	21,918	7,500	27,000	34,500
South Carolina	20,699	214,686	235,385	14,000	106,405	120,405
South Dakota	82,555	321,539	404,094	50,000	50,000	100,000
Tennessee	245,685	577,597	823,282	-	221,860	221,860
Texas	-	147,652	147,652	-	60,000	60,000
Utah	47,769	235,639	283,408	-	96,000	96,000
Vermont	119,378	199,163	318,541	70,000	50,000	120,000
Virginia	85,845	309,961	395,806	-	315,290	315,290
Washington	41,559	339,943	381,502	86,250	96,750	183,000
West Virginia	11,585	129,696	141,281	8,000	92,850	100,850
Wisconsin	382,327	661,473	1,043,800	453,137	917,790	1,370,927
Wyoming	9,889	179,777	189,666	-	18,200	18,200
Hawaii	-	2,402	2,402	-	-	-
Puerto Rico	60,180	215,830	276,010	46,000	110,670	156,670
TOTALS	4,422,720	16,576,862	20,999,582	3,682,118	12,159,444	15,841,562

TABLE VII

1887-1888 Annual Report

Date	Particulars	Debit	Credit	Balance	Total	Total
1887	Jan 1	100.00		100.00	100.00	100.00
1888	Jan 1	100.00		100.00	100.00	100.00
1889	Jan 1	100.00		100.00	100.00	100.00
1890	Jan 1	100.00		100.00	100.00	100.00
1891	Jan 1	100.00		100.00	100.00	100.00
1892	Jan 1	100.00		100.00	100.00	100.00
1893	Jan 1	100.00		100.00	100.00	100.00
1894	Jan 1	100.00		100.00	100.00	100.00
1895	Jan 1	100.00		100.00	100.00	100.00
1896	Jan 1	100.00		100.00	100.00	100.00
1897	Jan 1	100.00		100.00	100.00	100.00
1898	Jan 1	100.00		100.00	100.00	100.00
1899	Jan 1	100.00		100.00	100.00	100.00
1900	Jan 1	100.00		100.00	100.00	100.00
1901	Jan 1	100.00		100.00	100.00	100.00
1902	Jan 1	100.00		100.00	100.00	100.00
1903	Jan 1	100.00		100.00	100.00	100.00
1904	Jan 1	100.00		100.00	100.00	100.00

PSOROPTIC SHEEP SCABIES

As Reported From Respective States	Number of Infected Counties	Number of Infected Flocks	Number of Infected Sheep	Total Inspections	Total Dippings
Arizona	0	0	0	578,612	27,814
Arkansas	6	21	2,513	71,589	14,376
California	0	0	0	777,440	408
Colorado	0	0	0	35,013	9
Delaware	1	2	321	2,108	657
Florida	0	0	0	1,405	0
Georgia	0	0	0	2,502	2,502
Idaho	0	0	0	25,561	0
Illinois	39	110	5,544	34,680	3,522
Indiana	29	66	2,196	6,386	1,672
Iowa	37	71	5,266	86,156	5,780
Kansas	0	0	0	48,049	2,188
Kentucky	12	25	3,209	62,576	3,288
Louisiana	1	1	5	353,396	115,551
Maryland	1	1	13	239	142
Michigan	13	27	3,256	4,198	4,198
Minnesota	5	5	4,633	14,732	8,732
Mississippi	0	0	0	193,237	28,014
Missouri	14	27	2,366	6,565	3,896
Nebraska	27	48	5,004	22,173	18,079
Nevada	0	0	0	85,920	0
New Jersey	8	11	501	6,756	342
New Mexico	0	0	0	1,638,855	21,143
New York	3	5	131	131	118
Ohio	39	98	6,329	10,983	8,045
Oklahoma	3	3	353	4,232	765
Oregon	0	0	0	35,204	0
Pennsylvania	8	12	449	557	489
South Dakota	6	12	1,125	300,164	3,663
Tennessee	5	16	900	25,358	2,059
Texas	5	8	91	6,383,092	273,545
Utah	0	0	0	714,884	0
Virginia	17	86	6,708	59,129	7,641
Washington	0	0	0	71,345	3
West Virginia	8	23	1,877	30,579	4,530
Wisconsin	1	1	35	762	0
Wyoming	1	3	4,248	249,628	9,091
TOTALS	289	682	57,073	11,944,196	572,262

Goats inspected in Arizona 2,630; Arkansas 608; California 601; Iowa 10; Texas 50,782; Washington 2; Wyoming 3; total 54,636.

Goats dipped in Arizona 349; Arkansas 500; Iowa 6; Texas 1,548; Wyoming 1; total 2,404.

In addition, occasional flocks of sheep were found infected with chorioptic scabies and an occasional flock of goats was found infected with demodectic mange.

TABLE VIII



PSOROPTIC SHEEP SCABIES REPORTED

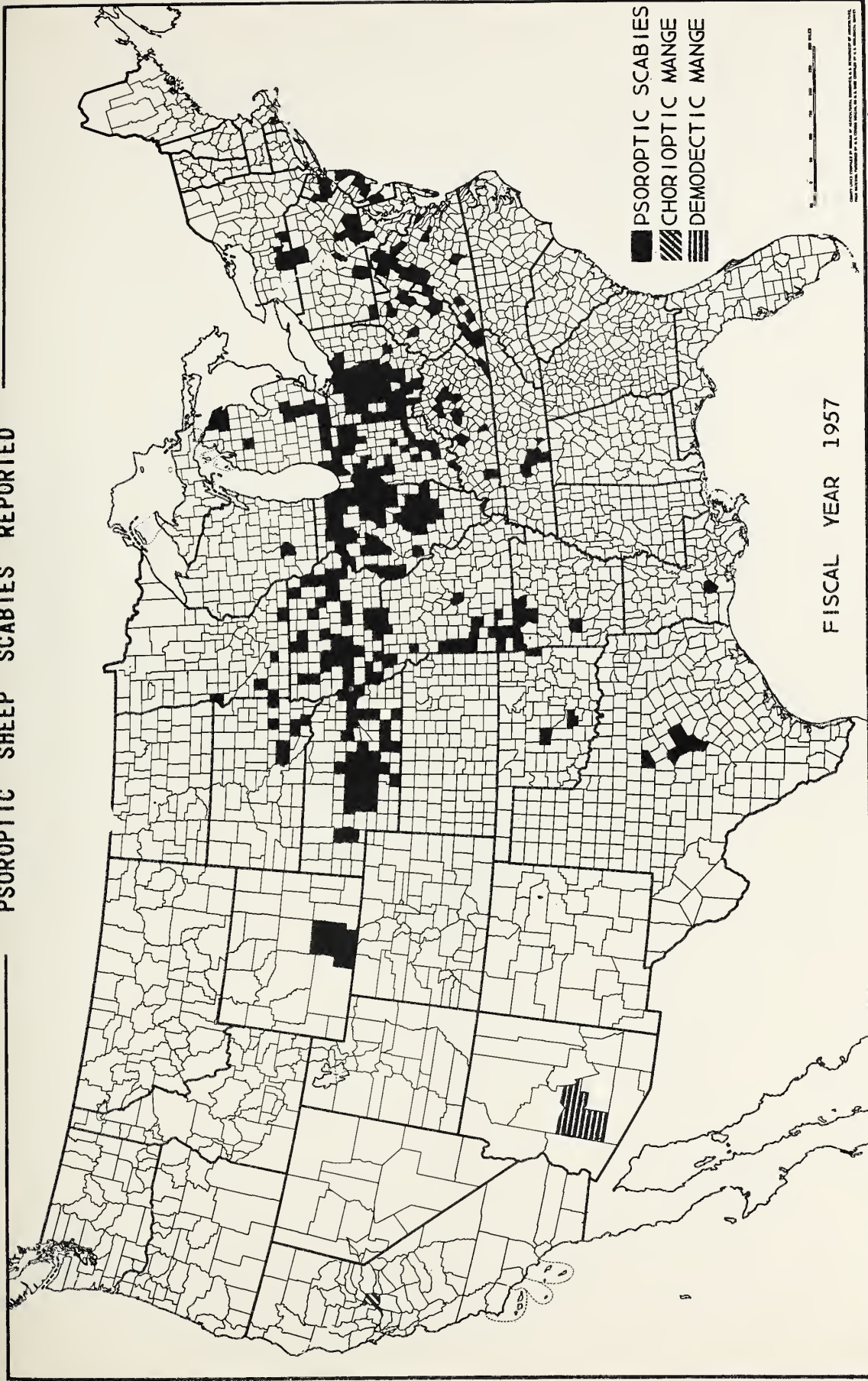


FIGURE 28



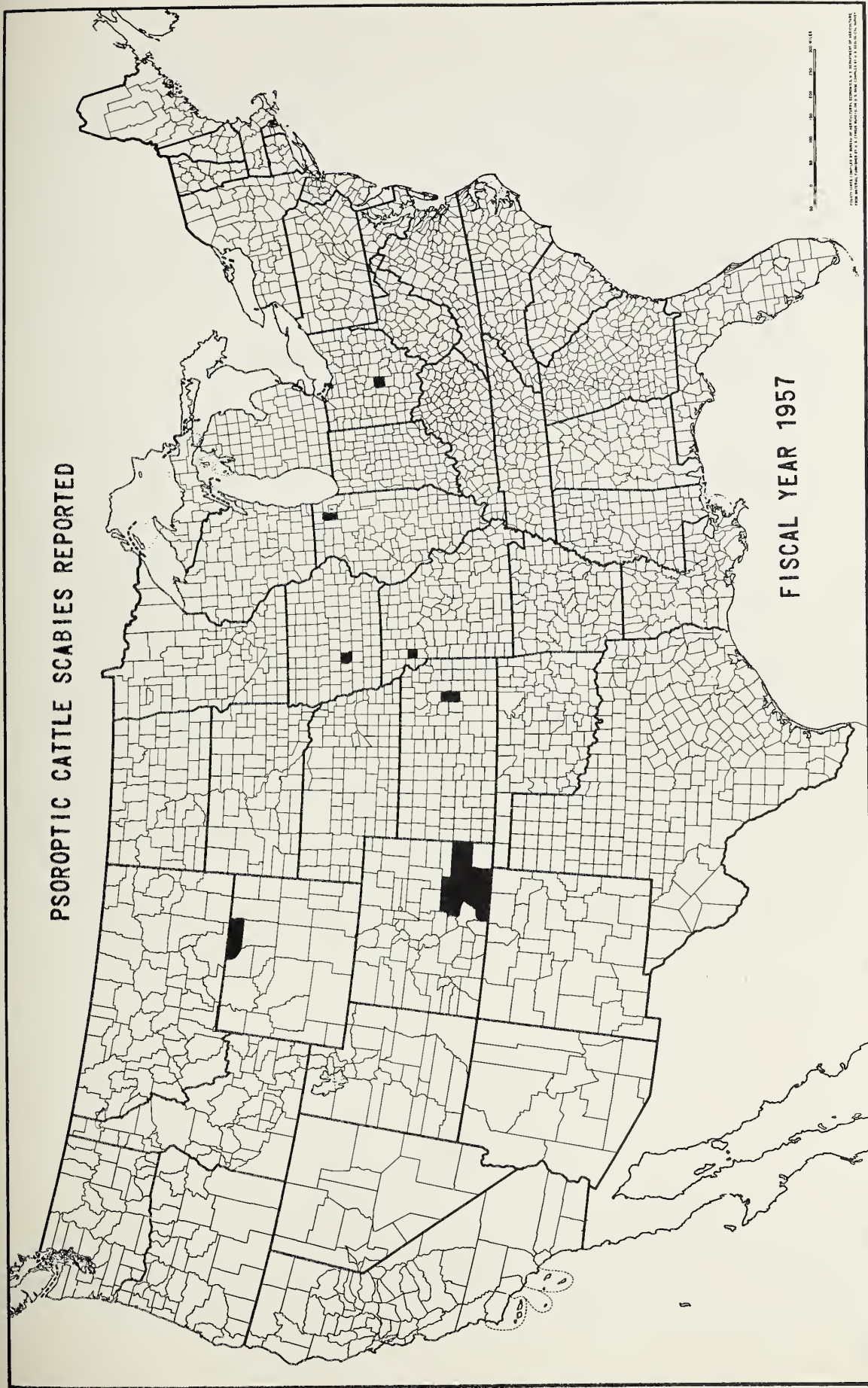


FIGURE 29



The table below compares Federal and State scrapie indemnity payments for the fiscal years 1956 and 1957.

	<u>F.Y. 1956</u>	<u>F.Y. 1957</u>
Federal	\$ 59,956	\$ 329,736
State	42,377	196,099

There were fewer infected flocks found in 1957 than in 1956, but a larger number of sheep were involved because the disease appeared in large flocks.

- b. Anthrax outbreak in Oklahoma and Kansas. An outbreak of anthrax involving cattle was first reported during the latter part of July 1957 in the Northeastern corner of Oklahoma, and later in the Southeastern corner of Kansas. When the extent of the outbreak assumed such proportions that State forces were unable to cope with it, the State officials appealed for Federal assistance. Federal veterinarians working in the two States were made available immediately. It later became necessary to send in 22 additional Federal veterinarians from adjacent States to assist. An anthrax specialist from Washington, D. C. served as an adviser to the State officials directing the program. The combined State and Federal forces vaccinated more than 140,000 animals in the two States. The press of the work made it necessary for the personnel to work many hours of overtime each day, as well as seven days a week, to complete the vaccination as soon as possible. New cases ceased to develop approximately 10 days after most of the animals in the area were vaccinated. Approximately 750 animals died as a result of the disease. Only one human case was reported, which responded favorably to treatment.
- c. No positive cases of dourine and glanders of horses found in 1957. A total of 108 samples of equine serum was submitted for laboratory examination as compared with 2,338 in 1956. All 108 samples were negative.
- d. Surveys conducted for incidence of leptospirosis. Extensive interest has been expressed in 12 States and Puerto Rico where leptospirosis surveys have been inaugurated. States have been selected throughout the country which represent both the dairy and beef cattle interests as well as the swine industry. Surveys will include data from the northern to the southernmost States to determine the number of herds and cattle showing serological reactions to the disease. The uniform techniques and procedures adopted for applying the test permit correlating test results with actual herd histories where infection exists. The summary of these investigations will be of material value in formulating future measures for the control of leptospirosis.

- e. Anaplasmosis control and eradication measures tested. Satisfactory progress on the pilot operation in Hawaii has been made. A cooperative Federal-State-owner experimental project has been developed in Tennessee consisting of (1) test and slaughter, (2) test and segregation, (3) test and retention of reactors in the herd. This project, involving selective herds, will serve to provide additional information as field trial studies in the control and eradication of anaplasmosis.

Virginia has adopted and is offering to livestock owners in that State a voluntary anaplasmosis program. Herds suspected of harboring the disease are tested and the owners are allowed to either remove the reactor animals for immediate slaughter or hold them under segregation until such time as they can be marketed for slaughter.

7. Supervision maintained over interstate transportation of livestock.

- a. Livestock markets increase in 1957. Federal inspection service was extended to eleven additional livestock markets during 1957, making a total of 59 stockyards in 57 cities under inspection. At these yards Department employees inspected 25,994,640 cattle, 12,791,764 sheep and 29,252,660 swine, and supervised the dipping of 299,474 sheep for scabies during the year, in compliance with regulations of this Department and States of destination. A total of 173,375 swine were immunized and disinfected against hog cholera for movement to farms for stocker and feeder purposes. Veterinarians are constantly on duty examining for disease all animals that pass through these stockyards. These veterinarians are assisted by livestock inspectors skilled in the detection of animals affected with disease or abnormal conditions. Livestock inspectors also supervise the dipping of cattle and sheep for scabies, the cleaning and disinfecting of pens, cars, and trucks used in the handling of diseased animals, and trace the origin of diseased livestock in order that appropriate action may be taken to prevent further spread of disease.
- b. New Federal regulations enforced. Under the new Federal regulations to prevent the spread of brucellosis and paratuberculosis, effective January 1, 1957, provision was made for specifically approved stockyards and slaughtering establishments. Shippers may move cattle interstate into such markets without having to meet certain test requirements prior to such movement provided interstate and intrastate requirements are met when cattle are moved from the markets. There were 869 livestock markets and 1,410 slaughtering establishments specifically approved and in operation at the close of fiscal year 1957, or during the first six months the new regulations were in effect.

c. c. High standards maintained for dips and disinfectants. Dips and disinfectants permitted under Department regulations continue to be maintained at high standards as a result of checks made at stockyards and in field trials on their efficacy for the control and eradication of disease. Those meeting specified requirements are permitted for official use in livestock disease eradication activities. Samples of the various types of dips and disinfectants are collected and forwarded to the Department's chemical laboratory for analysis. The Department maintains current lists of manufacturers and distributors of the acceptable dips and disinfectants for the guidance of Federal and State officials, livestock market operators, veterinarians, transportation companies, livestock owners, and others.

d. The following statistics show the comparative volume of activity at the public stockyards in the fiscal years 1956 and 1957.

	<u>F. Y. 1956</u>	<u>F. Y. 1957</u>
Number of stockyards operating	48	59
Number of cities in which located ..	46	57
Animals inspected:		
Cattle	25,187,037	25,994,640
Sheep	12,835,044	12,791,764
Swine	32,518,288	29,252,660
Total animals inspected	<u>70,540,369</u>	<u>68,039,064</u>
Animals dipped and immunized:		
Cattle dipped	672	2,287
Sheep dipped	235,488	299,474
Swine immunized	155,773	173,375
Total animals dipped and immunized	<u>391,933</u>	<u>475,136</u>
Health certificates issued for		
shipments	230,579	245,087
Infectious cars received	1,765	1,692
Cars cleaned and disinfected*	4,096	3,278
Trucks cleaned and disinfected	31,372	34,869
Diseased animals received	220,926	347,277
(1957 total includes 143,557 brucellosis, 7,239 tuberculosis, and 115 paratuberculosis reactors; 196,366 other diseased animals).		

* Includes requests by States and railroads.

- e. Twenty-eight Hour Law enforced. The purpose of the 28-Hour Law is to prevent the overconfinement of animals shipped in interstate commerce by common carrier. Waybills and records maintained by carriers and others are examined daily and apparent violations reported at stations where Federal live-stock inspectors are stationed. Inspections are also made from time to time at approximately 900 feed, water, and rest stations in 48 States to ascertain if the facilities and equipment are maintained for the safe and humane handling of the species of animals for which they were designed. When unsatisfactory conditions are found at these stations they are brought promptly to the attention of the responsible railroad for corrective action. In addition, the railroad records are checked and all cases of overconfinement beyond the statutory limit are reported.

During the year the Department received 582 reports of alleged violations of the 28-Hour Law and recommended prosecution of 392 cases. Reports show penalties of \$21,775, and costs were imposed on 205 violations.

- f. Regulatory laws enforced. The Department received notices of 306 violations of the Animal Quarantine Laws. Prosecution was recommended in 164 cases. Disposition was made by the courts during this period of 15 cases, and fines totaling \$1,900 were imposed.

Animal Quarantine:

1. Regulations enforced. All horses, ruminants, swine, and poultry offered for importation into the United States are carefully inspected at coastal, air, and border ports of entry. Certain animals and poultry are quarantined at designated quarantine stations. These procedures are to prevent the introduction and dissemination of diseases and pests of foreign origin into the United States.

The Bureau of Customs and the Public Health Service continued their valuable assistance in the administration of import regulations. Public Health Service officials at ocean ports obtained 32,568 declarations from masters of ships, certifying to the absence or presence of prohibited animals, or meats therefrom, aboard their vessels.

The following table lists the animals, including poultry, inspected and passed for entry in fiscal year 1957:

	Canadian Border Ports	Mexican Border Ports	Ocean Ports	Total	Refused Entry
Animals:					
Cattle	60,219	224,334	22	284,575	2,492
Swine	913	5	51	969	- -
Sheep	8,135	- -	10	8,145	5
Goats	22	1	- -	23	1
Equines	16,856	18,275	1,800	36,931	1,149
Poultry	10,565	18	4,524	15,107	897
Other					
Animals a/	48	43	113	204	13
Total animals...	96,758	242,676	6,520	345,954	4,557
Eggs (cases)	13,722	- -	3,502	17,224	97

a/ Includes a wide variety of zoo-type animals.

In addition to the above importations, 2,234 animals for immediate slaughter (cattle, swine, sheep and goats) were inspected and passed for entry into the U. S. Virgin Islands from the British Virgin Islands. Also, 185,614 ducklings entered the United States during the fiscal year for transshipment to Mexico.

Equines (horses, mules, and burros) offered for importation from overseas and Mexico, are given careful physical examination by Department veterinarians, and are required to be negative to

tests for dourine and glanders (glanders is also transmissible to humans). Accordingly, approximately 9,000 serum samples were collected from such animals at ports of entry and tested at Department laboratories. Most tests were negative; however, 117 samples were diagnosed as follows:

38 positive and 25 suspicious for glanders
49 positive and 5 suspicious for dourine.

During the year, 1,266 stray and smuggled Mexican animals were apprehended and either returned to Mexico or otherwise disposed of in accordance with Department regulations. This total was comprised of 946 equines, 283 cattle, 21 goats, 10 sheep, and 6 swine.

2. Number of animals certified for entry free of duty declines 9 percent. Under the provisions of Paragraph 1606 of the Tariff Act of 1930, certificates as to the purity of breeding were issued for 20,822 animals imported during fiscal year 1957, as compared with 22,782 animals for the previous fiscal year. The purebred animals certified for entry free of duty were, by species, as follows:

	<u>Fiscal year 1956</u>	<u>Fiscal year 1957</u>
Horses	423	506
Cattle	20,646	18,713
Sheep	694	791
Swine	392	130
Goats	1	- -
Dogs	624	680
Cats	2	2
Total	22,782	20,822

3. Inspection of imported animal products and forage continues heavy. Sanitary control was maintained over the entry of various animal products, and hay and straw. Products permitted entry under restrictions designed to prevent the introduction into the United States of foot-and-mouth disease, rinderpest, anthrax, or other infectious diseases of animals and poultry were transported from the port of entry under seal to approved destination establishments and there handled under supervision. Railroad cars, trucks, and premises involved in the transportation and handling of restricted products were disinfected.

Department inspectors destroyed all unsterilized hay and straw used as packing material in mail packages from countries where foot-and-mouth disease or rinderpest exists.

The following table compares activity in fiscal years 1956 and 1957:

<u>Items of Inspection</u>	<u>Fiscal year 1956</u>	<u>Fiscal Year 1957</u>
Ocean vessels	32,559	35,744
Airplanes	59,568	76,454
Hides and skins (number)	68,552,693	54,425,400
Wool (million pounds)	453	355
Animal casings (thousand pounds) ...	10,000	12,500
Animal casings disinfected (thousand pounds).....	430	344
Miscellaneous animal by-products (tons)	131,000	152,000

Particular attention was given during the year to preventing the landing of fresh, chilled, or frozen meats, or garbage derived therefrom, from air and ocean transports provisioned in countries where foot-and-mouth disease or rinderpest exists. More than 93,000 pounds (20,500 lots) of prohibited and/or restricted meats were seized and disposed of in accordance with Department regulations during the fiscal year when found aboard ships and airplanes or intercepted at land border stations and post offices.

4. Export animals and transporting vessels inspected. The law requires that domestic ruminants and swine intended for export be free from disease, and that vessels on which such animals and equines are to be transported be equipped to insure their safe transport and humane handling. Animals are inspected and tested in various districts of origin throughout the United States and supervision is given to livestock facilities and other accommodations on ocean vessels and aircraft. The trend towards the export shipment of livestock to foreign countries by air rather than by ocean vessel has presented an acute inspection problem at some ports of export, inasmuch as individual air shipments are much smaller than shipments by ocean vessel but require in many instances nearly the same inspection time. Since air ports are usually located many miles from ocean ports where activities are normally carried on, it has become necessary to assign additional inspectors to provide proper inspection service. In the 1957 fiscal year, a total of 82,082 animals' were inspected and tested for export as compared with 117,824 in fiscal year 1956. The decrease of 35,742 resulted from 40,565 fewer sheep destined for Mexico. The number of cattle exported to all countries increased by about 7,500.

The distribution of the 1957 exports was as follows:

	Destination			Total
	Canada	Mexico	Other Countries	
Cattle....	7,268	31,572	12,582	51,422
Swine	- -	2,814	4,788	7,602
Sheep	6,333	3,459	796	10,588
Goats	8	5,515	382	5,905
Equines ..	722	2,852	1,364	4,938
Other Animals..	1,546	81	- -	1,627
Total	15,877	46,293	19,912	82,082

5. Outstanding licenses under the Virus-Serum-Toxin Act permitted the production of 121 different biological products as of June 30, 1957. Several products are manufactured in more than one form so that the total number of different biological products was 197. The total number of outlines of production processed during the year was 466. Labels and circulars for licensed biological products reviewed and processed during the fiscal year totaled 2,946 sets, as compared with 2,199 sets in fiscal year 1956.

The progress and anticipated extent of the work is reflected in the following table:

Animal Quarantine

	Actual F. Y. 1957	Estimated F. Y. 1958	Estimated F. Y. 1959
Establishments producing anti-hog-cholera serum and hog-cholera virus	25	25	25
Production (cc):			
Serum (completed product)	519,757,258	750,575,400	650,750,000
Virus:			
Simultaneous	14,403,602	19,337,940	11,425,500
Hyperimmunizing	89,964,754	128,769,060	115,689,050
Inoculating	614,397	645,000	675,000
Animal Inspections	737,339	1,032,270	921,052
Tests Supervised	3,686	5,067	4,616
Establishments producing hog-cholera vaccine	21	21	22
Production (doses)	34,563,122	35,505,600	36,875,000
Establishments producing other biologics	49	53	55
Production:			
cc.....	739,595,661	775,561,800	801,756,200
Milligrams	599,550,748	685,119,100	681,543,100
Units.....	501,856,369	471,053,200	551,829,300
Products Destroyed (all kinds)			
cc.....	17,670,300	22,006,200	22,051,800
Milligrams.....	22,688,329	42,560,200	35,762,500
Units.....	350,000	10,500	350,000
Export Certificates Issued	825	1,100	1,000

1,958 samples of biological products and sub-cultures of organisms were collected and forwarded to Washington laboratories for testing. Included in these were 1,516 samples of brucellosis vaccine, of which 7.8 percent was found unsatisfactory when examined in these laboratories. The unsatisfactory batches of vaccine were destroyed under Federal supervision and represented 2,637,395 cc., or enough vaccine to treat 527,479 calves. In the course of

554 purity and safety tests on hog-cholera virus, approximately 7.2 percent of the batches tested were suspected of containing the swine-erysipelas organism. Approximately 2.5 percent of the lots were found to contain the causative organism of swine erysipelas and were destroyed under supervision of a Federal inspector.

The following table shows the volume of biological products certified for export:

Products*	F.Y. 1956	F.Y. 1957	Estimated	
			F.Y. 1958	F. Y. 1959
Anti-hog-cholera serum (cc)	40,722,000	30,378,000	36,575,000	32,675,000
Other serums (cc) .	285,000	582,000	550,000	610,000
Hog-cholera virus(cc)	1,218,000	1,037,000	1,045,000	955,000
Antitoxins (units).	2,548,000	761,000	2,500,000	2,000,000
Bacterins	5,680,000	5,555,000	5,825,000	5,950,000
Diagnostics	129,000	67,000	75,000	75,000
Vaccines	13,570,000	21,727,000	26,875,000	31,050,000

* Doses unless otherwise indicated.

MEAT INSPECTION

Current activities: Federal meat inspection assures clean, sound, and wholesome meat for human consumption, free from adulteration, and truthfully labeled. The work consists of inspecting animals and carcasses at the time of slaughter; inspection at all stages of preparation of meat and meat-food products to assure sanitary handling; destruction of condemned product to prevent its use for human food; enforcement of measures that insure informative labeling; inspection of meat and meat-food products offered for importation; and a supervising system of certification to assure acceptance of domestic meats in foreign trade. Meat and meat-food products are examined for compliance with specifications of governmental purchasing agencies; reimbursements are received for the cost of such services. Reimbursements are also received from meat packing establishments for the cost of overtime work performed at their request. Continuous inspection of the manufacture of process or renovated butter is also included under this activity.

Selected examples of recent progress:

1. Demand for Federal meat inspection continues to increase. There has been a substantial increase in the number of meat packing plants in the past five years from 965 in 1953 to 1244 in 1957. This trend is expected to continue. Plants are being located in additional towns and extra shifts are frequently used to speed up production. The trend toward more use of frozen meats and other processed meat products is also increasing the demands for meat inspection. Additional meat packers are finding it necessary to come under the Federal inspection programs to meet the demands of institutional buying and chain-store merchandising, which are rapidly assuming greater prominence. Such buyers require Federal meat inspection because they make interstate shipment of their products.
2. The scope of operations under the meat inspection laws is indicated by the following tables:

Meat Inspection Activities

	At close of Fiscal Years			
	1954	1955	1956	Estimated 1959
Number of establishments covered ...	1,067	1,120	1,184	1,306
Number of cities and towns in which establishments were located	410	435	471	540

During Fiscal Years (In thousands)

<u>Antemortem inspection:</u>				
Animals passed	90,733	98,011	108,354	104,181
Animals suspected	189	183	187	165
Animals condemned	6	6	6	6
Total animals inspected	90,928	98,200	108,547	104,352

Postmortem inspection:

Carcasses passed	90,640	97,913	108,242	104,050
Carcasses condemned	282	281	298	295
Total carcasses inspected	90,922	98,194	108,540	104,345

Inspection of animals by species:

<u>Antemortem inspection (animals)</u>				
Cattle	18,479	18,729	19,683	20,145
Calves	7,480	7,601	7,607	7,300
Sheep and lambs	14,369	14,489	14,209	13,919
Goats	53	87	86	100
Horses	250	237	180	150
Swine	50,297	57,057	66,782	62,240
Total	90,928	98,200	108,547	104,352

*

19,400
7,600
13,500
100
140
63,260

104,000

Meat Inspection Activities - Continued

During Fiscal Years (continued)
(In thousands)

	1954	1955	1956	1957	1958	1959
						Estimated
<u>Inspection of animals by species:</u>						
(Continued)						
Postmortem inspections (Carcasses)						
Cattle	18,476	18,725	19,680	20,142	19,098	19,398
Calves	7,479	7,601	7,606	7,768	7,299	7,599
Sheep and lambs	14,368	14,489	14,209	13,918	13,499	13,499
Goats	53	87	86	116	100	100
* Horses	250	237	179	162	150	140
Swine	50,296	57,055	66,780	62,239	60,848	63,258
Total	90,922	98,194	108,540	104,345	100,994	103,994

* Horses are slaughtered and their meat is identified as such. It is handled and prepared in separate establishments from those handling cattle, calves, sheep, swine and goats.

Meat and Meat Food Products Prepared and Processed
Under Federal Inspection by Fiscal Years

Fiscal Year	Pounds
1954	14,833,471,229
1955	16,373,853,029
1956	18,207,298,082
1957	17,804,070,049
1958 (est.)	17,800,000,000
1959 (est.)	18,300,000,000

Meat and Meat Food Products Prepared and Processed Under Supervision
Classified by Type of Product (In thousand pounds)

	<u>FY 1954</u>	<u>FY 1955</u>	<u>FY 1956</u>	<u>FY 1957</u>
Placed in cure:				
Beef	136,095	164,672	168,475	162,948
Pork	3,093,766	3,451,336	3,704,683	3,491,198
Other	2,204	1,958	1,627	1,449
Smoked and/or dried:				
Beef	56,013	60,244	57,064	60,477
Pork	2,139,976	2,439,226	2,637,949	2,515,708
Cooked meat:				
Beef	66,033	73,101	79,769	87,705
Pork	263,175	307,671	312,782	313,338
Other	3,092	4,966	3,945	3,222
Sausage:				
Fresh finished	201,933	221,701	238,390	237,881
To be dried or semidried	126,633	130,224	141,755	142,619
Frankfurters, weiners	555,346	583,979	633,253	663,400
Other	615,003	615,357	619,392	624,880
Loaf, headcheese, chile con carne	196,716	199,550	206,698	207,543
Steaks, chops, roasts	633,492	647,475	701,945	652,392
Meat extract	3,153	2,351	1,901	2,243
Sliced bacon	713,408	870,459	998,599	980,138
Sliced other	88,968	124,921	165,258	201,119
Hamburger	188,859	146,648	163,468	221,002
Miscellaneous meat products	39,593	57,491	71,865	90,079
Lard:				
Rendered	1,589,966	1,905,963	2,186,137	2,050,770
Refined	1,250,946	1,422,965	1,657,601	1,636,910
Oleo stock	112,922	114,268	108,576	84,667
Edible tallow	138,296	153,329	185,132	242,140
Rendered pork fat:				
Rendered	89,873	104,059	115,007	102,927
Refined	55,355	62,007	62,858	51,879
Compound containing animal fat	398,489	504,921	578,097	688,310
Oleomargarine containing animal fat	31,260	36,654	54,078	76,049
Canned products	1,988,303	1,915,941	2,307,407	2,167,722
Horse meat products:				
Cured	6,419	7,102	4,543	7,072
Chopped	26,659	21,734	20,053	15,578
Edible oil	2,370	352	-	-
Canned horse meat ..	19,155	21,226	18,990	20,707
Total	14,833,471	16,373,851	18,207,297	17,804,072

Examination of Meat and Meat Food Products for Other Government Agencies (Reimbursable)
(In thousand pounds)

<u>Branch of Government</u>	<u>FY 1954</u>	<u>FY 1955</u>	<u>FY 1956</u>	<u>FY 1957</u>	(Estimated) <u>FY 1958</u>
<u>Department of Agriculture:</u>					
Agricultural Marketing Service . . .	-	23	3,445	15,919	16,000
Commodity Stabilization Service ..	76	9,566	207,865	111,112	115,000
Forest Service	-	65	203	237	225
<u>Department of Commerce:</u>					
Civil Aeronautics Administration .	28	63	71	24	25
Maritime Administration	-	18	238	17	20
<u>Department of the Interior:</u>					
Alaska Road Commission	-	-	1	-	-
Fish and Wild Life	-	13	192	167	170
Bureau of Indian Affairs	-	8	126	158	160
<u>Department of Health, Education and Welfare:</u>					
Public Health Service	42	365	2,322	2,412	2,400
<u>Department of Justice:</u>					
Bureau of Prisons	53	56	125	131	130
Department of the Army	-	171,373	192,526	204,148	200,000
Coast Guard	79	48	47	22	20
Marine Corps	93	73	68	17	20
Department of the Navy	352,550	280,986	156,633	229,848	225,000
General Services Administration	-	107	1,182	784	800
Veterans' Administration	2,764	21,291	30,776	30,290	31,000
Total	355,685	484,055 1/	595,820 2/	595,286 3/	590,970

1/ Includes 6,716 thousand pounds rejected.

2/ Includes 5,209 thousand pounds rejected.

3/ Includes 4,323 thousand pounds rejected.

Summary of Samples Examined in Laboratories for Determination
of Adulteration or other Objectionable Conditions, Fiscal Year 1957

	<u>Number Examined</u>	<u>Reported Adversely</u>
Meat and meat food product	11,045	1,869
Edible fats and oils	585	6
Binders (cereal, dried skim milk, soya flour)	767	11
Seasonings (spices, flavorings)	4,657	97
Curing materials	1,268	14
Miscellaneous	1,381	85
Samples of animal foods	128	16
Imports	<u>2,183</u>	<u>62</u>
Total	22,014	2,160

Examination of Labels and Sketches

	<u>FY 1956</u>	<u>FY 1957</u>
Number of labels and sketches approved	37,313	35,775
Number of labels approved for imported meat ..	668	926
Number of labels and sketches refused approval	<u>2,308</u>	<u>2,167</u>
Total number of labels and sketches reviewed	40,289	38,868

Inspection of Imported Meat and Meat Food Products

<u>Fiscal Year</u>	<u>Pounds</u>
1954	334,326,990
1955	278,837,336
1956	277,479,030
1957	361,569,278
1958 (est.)	375,000,000

3. Specimens of diseased tissue examined. During the past year, 1,657 examinations of questionable material were made in servicing the needs of inspectors. These included histopathological diagnoses, biological assays, serological identifications, bacteriological evaluations and parasite viability determinations. Five hundred and thirty-nine of these specimens were submitted from animals suspected of being infected with bovine tuberculosis or other diseases, as an aid in animal disease eradication programs. A wide variety of pathological conditions were diagnosed. Since facilities for handling cultures of pathogenic organisms were not available during this year the work was limited to working with formalin fixed tissues (tissues in which the bacteria have been killed).
4. Methods devised to guard against harmful chemical additives and adulteration in meat products. A marked increase in the number and kind of chemical additives prepared by the chemical industry and offered for use in meat products has accompanied an increased public awareness as reflected in Congressional Hearings of the importance of control of such additives. These additives contribute in many ways to the processing, quality, packaging, and merchandising of the products. Procedures have been put into effect which assure against the use of harmful additives and those which might result in adulteration of food or which conceal inferior product quality.
5. Certification of meat products for export. It has become increasingly difficult to move American meat products freely in normal export commercial channels because of the wide range of requirements which must be met. A plan has been worked out whereby an American exporter is able to obtain official certification covering the detailed specifications of the foreign government or buyer.
6. Improved processing developed for certain types of semi-dry summer sausage. A harmless bacterial starter has been accepted as an ingredient in sausages of the tangy variety that will assure uniform results in the finished product and avoidance of loss because of processing failure. These sausages depend on a selective fermentation action as part of their processing to acquire the desired taste and quality. When chance inoculation is relied on, there is occasional failure and sometimes substantial loss of product.

(b) State Experiment Stations

	Payments to States, Hawaii, Alaska, and Puerto Rico	Penalty Mail	Total
Appropriation Act, 1958, and Base for 1959	\$30,353,708	\$250,000	\$30,603,708
Budget Estimate, 1959	<u>30,353,708</u>	<u>250,000</u>	<u>30,603,708</u>

PROJECT STATEMENT

Project	1957	1958 (estimated)	1959 (estimated)
1. <u>Payments to States, Hawaii, Alaska, and Puerto Rico:</u>			
a. Hatch Act, as amended by the Act of August 11, 1955	\$28,336,093:	\$29,181,708:	\$29,181,708
b. Agricultural Marketing Act (Title II), sec. 204(b) (August 14, 1946)	500,000:	500,000:	500,000
c. Federal administration	551,451:	672,000:	672,000
Total, Payments to States, Hawaii, Alaska, and Puerto Rico	29,387,544:	30,353,708:	30,353,708
2. <u>Penalty Mail</u>	250,000:	250,000:	250,000
Unobligated balance	116,164:	- -	- -
Total available or estimate	29,753,708:	30,603,708:	30,603,708
Transferred from "Cooperative Extension Work, payments and expenses, Extension Service", (71 Stat. 176)	-250,000:	- -	- -
Total appropriation or estimate .	29,503,708:	30,603,708:	30,603,708

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

STATE EXPERIMENT STATIONS

- Payments to States, Hawaii, Alaska, and Puerto Rico: For payments to agricultural experiment stations to carry into effect the provisions of the Hatch Act, approved March 2, 1887
- 1 [7 U.S.C. 362, 363, 365, 368, 377-379)], as amended by the Act
 - 2 approved August 11, 1955 ([69 Stat. 671] 7 U.S.C. 361a-361i), including administration by the United States Department of Agriculture, \$29,853,708; and payments authorized under section 204(b) of the Agricultural Marketing Act, the Act approved August 14, 1946 (7 U.S.C. 1623), \$500,000; in all \$30,353,708.

The first change deletes citations to the United States Code which have been transferred to 7 U.S.C. 361a - 361i.

The second change substitutes the appropriate citation to the United States Code for the old citation to the Statutes at Large applicable to the Act of August 11, 1955, which amended the Hatch Act, approved March 2, 1887.

STATUS OF PROGRAM

General: This appropriation represents the Federal Government's contribution to the support of the State, Territorial, and Puerto Rican agricultural experiment stations, established as departments of the land-grant colleges pursuant to the provisions of the Hatch Act of 1887.

The State agricultural experiment stations conduct research and experiments along the lines authorized by the Hatch Act and the complementary acts of the States on the many problems constantly encountered in the development of a permanent and sustaining agriculture and in the improvement of the economic and social welfare of the farm family. Because of differences in climate, soil, market outlets, and other local conditions, each State has distinct problems of production and marketing of crops and livestock. The farmers in the individual States naturally look to their State agricultural experiment stations for solution of the State and local problems, and in recent years have requested increased service to help meet changing conditions.

The research programs of the State stations, to be most effective, include participation in regional and national programs. Joint attack by a group of State stations is the most effective and often the only practical approach to problems of common interest. The stations, to an ever increasing extent, are acting together as regional groups to provide cooperative coordinated attacks on problems of regional and national interest. In a similar manner, the research programs of the State agricultural experiment stations and the Department of Agriculture are supplementary and interdependent.

The Federal-grant funds constitute a powerful force in bringing about inter-State cooperation and Federal-State collaboration in the planning and conduct of this over-all program of agricultural research. Therefore, the full impact of the Federal-grant funds cannot be fully evaluated solely on the basis of the amount of funds provided.

Research at the State stations during the fiscal year 1957 included approximately 5,900 specific lines of research financed wholly or in part by Federal-grant funds and about 7,000 lines of research under non-Federal funds. These lines of research are continued as long as they are productive. Fifteen to 18 percent of the research program passes its point of maximum productiveness annually and is replaced by new research on pressing problems.

Distribution of Payments: The Hatch Act, as amended on August 11, 1955, provides that the distribution of Federal payments to States for fiscal

year 1955 shall become a fixed base and that any sums appropriated in excess of the 1955 level shall be distributed in the following manner:

-20% shall be allotted equally to each State.

-not less than 52% shall be allotted to each State as follows:
one-half in an amount proportionate to the relative rural population of each State to the total rural population of all States, and
one-half in an amount proportionate to the relative farm population of each State to the total farm population of all States.

These populations shall be determined by the last preceding decennial census current at the time each such additional sum is first appropriated. This prevents the State allotments from shifting due to changes in relative rural and farm population.

-not more than 25% shall be allotted to the States for cooperative research in which two or more State agricultural experiment stations are cooperating to solve problems of the agriculture of more than one State.

-3% shall be available to the Secretary of Agriculture for the administration of this Act.

The amended Act also provides that any amount in excess of \$90,000 available for allotment to any State, exclusive of the regional research fund, shall be matched by the State out of its own funds for research, and for the establishment and maintenance of facilities necessary for the prosecution of such research.

The amended Hatch Act retains the requirement for marketing research as it existed in fiscal year 1955 and provides that 20% of the funds appropriated in excess of the 1955 appropriations shall be used for conducting marketing research projects approved by the Department of Agriculture. In addition, Section 204(b) of the Agricultural Marketing Act also authorizes payments to State agricultural experiment stations on a matching basis for cooperative projects in marketing research.

Table A shows the distribution of Federal payments to States and non-Federal funds for research at State agricultural experiment stations for fiscal year 1957. Table B shows the appropriations for State Experiment Stations for the fiscal years 1957, 1958, and 1959. Table C shows the approximate distribution of such Federal and non-Federal funds by fields of research.

Table A

Distribution of Federal Payments to States and Expenditures from Non-Federal Funds
For Research at State Agricultural Experiment Stations

Fiscal Year 1957

STATE	FEDERAL FUNDS		TOTAL FEDERAL FUNDS	NON-FEDERAL FUNDS	GRAND TOTAL
	Hatch Act, as amended	Section 204(b) Agricultural Marketing Act			
Payments to States, Hawaii, Alaska and Puerto Rico:					
Alabama.....	\$ 656,503	\$ 4,000	\$ 660,503	\$ 1,737,047	\$ 2,397,550
Alaska.....	189,115	7,700	196,815	279,805	476,620
Arizona.....	242,744	4,000	246,744	880,763	1,127,507
Arkansas.....	553,050	2,500	555,550	883,180	1,438,730
California.....	623,881	19,900	643,781	8,993,939	9,637,720
Colorado.....	295,207	5,000	300,207	1,310,198	1,610,405
Connecticut.....	257,355	12,500	269,855	1,004,582	1,274,437
Delaware.....	200,374	3,500	203,874	417,266	621,140
Florida.....	364,983	12,500	377,483	3,935,218	4,312,701
Georgia.....	683,290	9,000	692,290	2,554,204	3,246,494
Hawaii.....	225,902	—	225,902	617,581	843,483
Idaho.....	263,396	—	263,396	787,654	1,051,050
Illinois.....	646,678	6,750	653,428	2,478,040	3,131,468
Indiana.....	563,697	30,500	594,197	2,861,055Est.	3,455,252
Iowa.....	566,996	39,100	606,096	2,625,954	3,232,050
Kansas.....	420,976	15,900	436,876	1,923,689	2,360,565
Kentucky.....	678,160	11,450	689,610	1,269,140	1,958,750
Louisiana.....	487,626	3,500	491,126	2,565,925	3,057,051
Maine.....	271,382	22,500	293,882	374,660	668,542
Maryland.....	324,339	7,500	331,839	735,386	1,067,225
Massachusetts.....	305,729	2,000	307,729	612,014	919,743
Michigan.....	616,658	66,650	683,308	2,847,072	3,530,380
Minnesota.....	549,404	—	549,404	2,754,022	3,303,426
Mississippi.....	663,876	11,300	675,176	1,333,491	2,008,667
Missouri.....	604,872	36,000	640,872	1,109,117	1,749,989
Montana.....	257,082	—	257,082	1,248,334	1,505,416
Nebraska.....	376,272	4,350	380,622	1,559,625	1,940,247
Nevada.....	187,956	—	187,956	189,437	377,393
New Hampshire.....	220,689	—	220,689	206,374	427,063
New Jersey.....	299,774	11,725	311,499	1,777,356	2,088,855
New Mexico.....	256,191	—	256,191	438,348	694,539
New York.....	632,931	5,700	638,631	5,249,326	5,887,957
North Carolina.....	895,826	—	895,826	1,810,957	2,706,783
North Dakota.....	305,093	—	305,093	873,064	1,178,157
Ohio.....	730,022	13,750	743,772	2,240,468	2,984,240
Oklahoma.....	475,107	16,100	491,207	1,520,997	2,012,204
Oregon.....	333,098	14,000	347,098	2,055,013	2,402,111
Pennsylvania.....	804,192	5,500	809,692	1,611,093	2,420,785
Puerto Rico.....	610,079	—	610,079	1,375,384	1,985,463
Rhode Island.....	196,045	—	196,045	197,627	393,672
South Carolina.....	537,946	—	537,946	805,306	1,343,252
South Dakota.....	302,878	8,500	311,378	680,231	991,609
Tennessee.....	683,257	2,100	685,357	980,656	1,666,013
Texas.....	911,461	26,725	938,186	3,610,697	4,548,883
Utah.....	231,660	5,000	236,660	690,392	927,052
Vermont.....	230,244	—	230,244	182,533	412,777
Virginia.....	607,773	—	607,773	1,352,795	1,960,568
Washington.....	370,397	37,800	408,197	2,461,495	2,869,692
West Virginia.....	466,076	2,500	468,576	424,311	892,887
Wisconsin.....	560,498	—	560,498	3,403,522	3,964,020
Wyoming.....	209,858	12,500	222,358	531,206	753,564
Subtotal.....	22,948,598	500,000	23,448,598	84,367,549 (Est.)	107,816,147
Regional Research Fund.....	5,387,495	—	5,387,495	—	5,387,495
Administration.....	551,451	—	551,451	—	551,451
Unobligated balance.....	116,164	—	116,164	—	116,164
Subtotal.....	29,003,708	500,000	29,503,708	84,367,549 (Est.)	113,871,257
Penalty Mail:					
Reimbursement to Post Office Department for penalty mail costs of State experiment station directors.....	250,000	—	250,000	—	250,000
Grand Total.....	29,253,708	500,000	29,753,708	84,367,549 (Est.)	114,121,257

Table B

Appropriations for State Experiment Stations

Fiscal Years 1957-1959

State	Fiscal Year 1957	Fiscal Year 1958	Fiscal Year 1959 (Estimated)
Payments to States, Hawaii, Alaska, and Puerto Rico:			
Alabama.....	\$ 656,503	\$ 675,365	\$ 675,365
Alaska.....	189,115	192,838	192,838
Arizona.....	242,744	248,108	248,108
Arkansas.....	553,050	568,704	568,704
California.....	623,881	640,888	640,888
Colorado.....	295,207	302,297	302,297
Connecticut.....	257,355	263,581	263,581
Delaware.....	200,374	204,492	204,492
Florida.....	364,983	382,280	382,280
Georgia.....	683,290	702,810	702,810
Hawaii.....	225,902	230,850	230,850
Idaho.....	263,396	269,570	269,570
Illinois.....	646,678	664,711	664,711
Indiana.....	563,697	580,904	580,904
Iowa.....	566,996	582,882	582,882
Kansas.....	420,976	431,938	431,938
Kentucky.....	678,160	697,676	697,676
Louisiana.....	487,626	500,911	500,911
Maine.....	271,382	277,658	277,658
Maryland.....	324,339	334,282	334,282
Massachusetts.....	305,729	312,791	312,791
Michigan.....	616,658	633,732	633,732
Minnesota.....	549,404	564,837	564,837
Mississippi.....	663,876	683,356	683,356
Missouri.....	604,872	622,070	622,070
Montana.....	257,082	262,962	262,962
Nebraska.....	376,272	385,933	385,933
Nevada.....	187,956	191,684	191,684
New Hampshire.....	220,689	225,395	225,395
New Jersey.....	299,774	306,763	306,763
New Mexico.....	256,191	262,074	262,074
New York.....	632,931	650,177	650,177
North Carolina.....	895,826	922,278	922,278
North Dakota.....	305,093	312,525	312,525
Ohio.....	730,022	750,578	750,578
Oklahoma.....	475,107	487,779	487,779
Oregon.....	333,098	341,297	341,297
Pennsylvania.....	804,192	826,236	826,236
Puerto Rico.....	610,079	635,215	635,215
Rhode Island.....	196,045	199,980	199,980
South Carolina.....	537,946	552,928	552,928
South Dakota.....	302,878	310,229	310,229
Tennessee.....	683,257	704,722	704,722
Texas.....	911,461	937,927	937,927
Utah.....	231,660	236,754	236,754
Vermont.....	230,244	235,268	235,268
Virginia.....	607,773	624,701	624,701
Washington.....	370,397	379,724	379,724
West Virginia.....	466,076	478,595	478,595
Wisconsin.....	560,498	576,166	576,166
Wyoming.....	209,858	214,287	214,287
Subtotal.....	22,948,598	23,581,708	23,581,708
Regional Research Fund.....	5,387,495	5,600,000	5,600,000
Administration.....	551,451	672,000	672,000
Unobligated balance.....	116,164	—	—
Payments authorized for Marketing Research, Section 204(b), Agricultural Marketing Act a/.....	500,000	500,000	500,000
Subtotal.....	29,503,708	30,353,708	30,353,708
Penalty Mail:			
Reimbursement to Post Office Department for penalty mail costs of State experiment stations Directors.....	250,000	250,000	250,000
Grand Total.....	29,753,708	30,603,708	30,603,708

a/ Allotted to States by projects on the basis of recommendations by a committee of experiment station directors and approved by the State Experiment Stations Division, Agricultural Research Service.

TABLE C

Distribution of Federal-Grant Payments to States and Non-Federal Funds
by Fields of Research at State Agricultural Experiment Stations

Fiscal Year 1957

Field of Research	Federal-Grant Funds	Non-Federal Funds
Agricultural Engineering	\$ 980,000	\$ 2,278,000
Animal Diseases and Parasites	1,442,000	4,893,000
Economics of Production	1,644,000	2,447,000
Field Crop Production	3,835,000	13,246,000
Horticultural Crop Production	1,644,000	10,715,000
Human Nutrition and Home Economics	2,105,000	2,531,000
Insect Control	1,557,000	4,387,000
Livestock Production	5,075,000	21,767,000
New and Expanded Uses of Agricultural Products	1,701,000	4,049,000
Plant Diseases	1,788,000	4,809,000
Soil and Water Conservation	3,143,000	9,112,000
Forestry Production	288,000	1,012,000
Marketing (Domestic)	3,634,093	3,121,549
Total Obligations	\$28,836,093	\$84,367,549
Administration	551,451	--
Unobligated Balance	116,164	--
Subtotal	29,503,708	84,367,549
Penalty Mail	250,000	--
Total Appropriation	29,753,708*	84,367,549

* Includes \$500,000 Section 204(b) Agricultural Marketing Act Funds



Selected Examples of Recent Progress

1. Test for quick detection of plant viruses developed. The Pennsylvania station has developed a new test whereby plant viruses can now be detected within 45 minutes rather than the 3 to 7 days required under previous tests. A 2 percent suspension of red blood cells is added to a preparation of juice extracts from the fruit or leaf tissue of the plant to be tested. The extract is first treated with a phosphate buffer. If the red blood cells clump, virus infection is indicated.
2. Selenium found protective factor against vitamin-E deficiency. The element selenium, which is poisonous for poultry and other livestock, plays an important role in nutrition. When administered in very low amounts—0.1 to 0.5 parts per million—selenium is a protective factor against the vitamin-E deficiency in chicks known technically as "exudative diathesis." This finding of the New York (Cornell) station last year has considerable scientific importance. The research showed that selenium or one of its compounds is identical with the unknown vitamin-E sparing factor previously recognized in dried brewers' yeast. This finding may serve as a clue in overcoming the causes of numerous animal diseases, such as muscle-disease of calves, stiff-lamb diseases, and leg weakness in turkeys, and even muscular dystrophy in man.
3. Report of country sales of feeder cattle developed. The Arizona station has developed a procedure for making a range cattle market report in Arizona based on information obtained directly from brand inspectors and reported weekly during the test procedure. Approximately 2,700 copies of each weekly report were distributed to ranchers, cattle feeders, banks, cattle buyers, and livestock newspapers. Ninety-seven percent of the recipients polled in a survey regarded the market news report as generally accurate and expressed a desire that some agency establish this form of reporting as a permanent service. The station and the Department Market News Service are helping the State develop a permanent service for Arizona cattlemen.
4. Improved methods devised for studying the biochemistry of cholesterol. Cholesterol in animal and human diets has been suspected to be involved in certain blood vessel diseases. Cholesterol belongs to the group of complex compounds related to fats and known as sterols. Not long ago cholesterol and its immediate derivative, coprosterol, were the only sterols known to occur in the intestinal contents. Recently, biochemists at the Wisconsin station announced discovery of a new member of the sterol group. This was the sixth sterol to be found in the intestinal tract. A laboratory method was developed for producing it in sufficient quantity to be readily

available for chemical tests. This research is aimed at getting refined methods for distinguishing between cholesterol and other closely related sterols in nutritional studies, relating to animals and humans.

5. New technique developed for anaplasmosis research. The Florida station has developed a new laboratory technique to aid in determining the life cycle of anaplasma, microscopic organisms responsible for an increasingly serious disease of cattle, anaplasmosis. These organisms are introduced into the bodies of animals in bites from infected ticks or other blood sucking insects. The new technique consists of adding a fluorescent material to anaplasma anti-serum which is then put on various tissues to be examined under the microscope. Any anaplasma present will take up the stain and become visible under ultraviolet light. In the past, scientists have been unable to locate the organism in the infected ticks. This method offers a possibility of tracing the organism in the tick and of learning more about the disease organism inside the host animal.
6. Farm drying of rice nets profit. A Texas station study of drying and storing rice on the farm shows an average net increase of \$1.37 per barrel over the 10-year period 1945-55. The gross benefit consisted of a seasonal price spread of \$1.67 per barrel between September and February plus a saving of the normal drying charges of \$0.50 per barrel. The cost of owning and operating an on-farm drying and storage unit amounted to \$0.80 per barrel. The study indicated that the returns were greater than the costs in 9 years out of 10, also that grade and milling yield could be maintained in the on-farm drying and storage units. Purchase of these units could be amortized over a period of 3 years where average net benefits were obtained each year.
7. Physiological basis for hybrid corn vigor studied. Basic research, undertaken by the Illinois station to establish a physiological basis for hybrid vigor in corn seedlings, has shown that increased enzyme activity is involved. Further study will be directed toward determining whether the enhanced rate of growth is dependent on greater amounts of enzyme or whether it is due to greater enzyme efficiency, in order that information obtained may be incorporated in the breeding program.
8. Favorable moisture and fertility reduces weed problem in corn. Six-year trials carried on by the Iowa station showed that weeds are no problem in corn fields under conditions of favorable moisture and fertility. The experiments show that under conditions of low fertility a moderate infestation of foxtail reduced the yield of corn by 20 to 30 bushels per acre compared to weed-free corn. Where the fertility was higher, the yields were reduced only about 9 bushels. In similar tests where both irrigation and supplemental nitrogen were applied, there was no reduction in corn yield even with a heavy infestation of foxtail.

9. Irradiation extends shelf-life of chicken carcasses. Research reported by the Illinois station points to the possibility of pasteurizing food commercially through irradiation. Using dosage levels of 100,000 and 500,000 rep (units of measure used in irradiation work), eviscerated chickens packed in polyethylene bags were successfully pasteurized by irradiation. Later microbiological counts showed that irradiation almost doubled the shelf life of chicken stored at 40° F. and 50° F. No radiation off-flavors were readily apparent. The experiments seek to establish practicability of this method in order to increase the shelf life of eviscerated chicken and in turn widen the market area.
10. Promising controls for spotted alfalfa aphid found. The California station has had considerable success with three internal parasites imported from the Middle East in 1955-56. Within 6 months heavily parasitized aphids had spread over 100 miles. The station has also found two species of parasitic fungi effective under certain conditions. The Nevada station is developing an aphid-resistant line of alfalfa which is adapted to the Southwest.
11. Simple changes in tillage reduce peanut blight. In recent years peanut growers have experienced increasing crop losses from Southern blight and root rot. The Georgia station has found that there is a relation between increase in the diseases and the popular practice of using dead plant materials for mulches and dressing of the soil in peanut rows. The fungi causing the two diseases depend on dead organic material for food. They thrive in a moist, well-aerated environment that rarely reaches lower than 3 inches down into the soil. Tilling the upper 3 inches of soil so that little of the dead plant material remains for the disease organisms has resulted in control of blight and root rot and allowed peanut plants to develop branches and blossoms fully from the lower nodes. By changing their cultural practice growers have increased returns per acre from \$45 to \$65 without added cost of production.
12. Infrared light controls onion fungi. Successful control of the grey-neck-rot fungus, *Betrytis allii*, through infrared irradiation of freshly harvested onions is reported by the Texas station. Exposures for periods of 6 minutes controlled the disease both under refrigerated and common storage conditions. The treatment also proved effective in the artificial curing of freshly harvested onions and markedly reduced development of secondary surface fungi that produce a "smutted" appearance in stored onions.
13. New variety of "strong flour" spring wheat released. A new high in milling quality of hard red spring wheat was reached in the development and release of the Conley variety by the North Dakota station. Conley provides unusually "strong flour," a quality much sought after by flour mills because it permits milling better flour from "weaker" (i.e., ordinary) wheats. This specialized use by millers is affording growers of Conley an opportunity for premium prices. The research was done by close collaboration of wheat breeders and cereal technologists.

14. Cause of vibriosis in sheep established. In research aimed at saving sheep ranches the tremendous losses caused by flock abortions from Vibrio fetus infections, the Idaho and Utah stations have proved that it is not a breeding disease in which rams are implicated but is caused by the pregnant ewes feeding on materials that have been previously infected with genital discharges of earlier aborting ewes. Abortion losses due to vibriosis occur rarely in the same flock in successive years, indicating that ewes once affected develop some immunity. This suggests that it may be possible to develop a vaccine against the disease.
15. Cheaper sprout prevention in stored potatoes developed. In recent years agricultural experiment stations have made considerable progress in preventing potatoes from sprouting during storage. However, materials used are relatively expensive. The Maine station now reports that monyl alcohol vaporized at intervals into the air flow of potatoes stored in bins at temperatures of 55° F. suppressed sprouting and did so economically. Optimum conditions for sprout control were found when approximately 1/3 to 1/6 pounds of alcohol per ton of potatoes was rapidly vaporized.
16. Packaging of cut flowers improved. The Iowa station found film plastics gave better protection against temperature and mechanical damage in packaging flowers for retail and wholesale shipment than did the old-style wax sheetings. Initially, there was one drawback. The new packaging was tighter and closer, and therefore, favored microbial growth including some harmful fungi. This was overcome by use of a nascent chlorine protective dip, or exposure to ultra-violet radiation, supplemented by careful and generally sanitary handling. Safe liquid foams (hydrophilic polyformaldehyde) proved worthwhile in packages subject to extreme exposures. Soft film wraps proved less likely to encourage molds by bruising flowers than "crinkle" prone films. This work was conducted under funds available under section 204(b) of the Agricultural Marketing Act.

Regional Research Fund

For the conduct of research in which two or more State agricultural experiment stations are cooperating to solve problems that concern the agriculture of more than one State, there is available the "Regional Research Fund" authorized by Section 3(c)(3) of the Hatch Act, as amended, (formerly Section 9(b)(3) of the Bankhead-Jones Act). This fund amounts to \$5,600,000 in 1958. Of the amount appropriated in excess of the 1955 fixed base, not more than 25 percent is allotted to this fund. Allotments are made to stations on the basis of projects recommended by the Committee of Nine established by the Act to represent the State stations.

The following are examples of work carried on in 1957 under this fund:

1. Research on hazards in the use of insecticides coordinated. The combined efforts of all of the State experiment stations and the Department are being directed through 6 regional projects toward answering the many questions currently asked about the hazards involved in the use of pesticides. A group of North Central State stations

found that DDT applied to orchards or crops disappears at a fairly rapid rate. The Northeastern stations have observed flavor differences after insecticides were applied to peaches, apples, carrots, sweet corn, and broccoli and instruments are being developed to detect these differences. Unique bioassay techniques were developed by the Southern State stations, such as counts of mosquito larvae killed by insecticides soaking through the soil. In the West, the California station developed a residue information coordination center to index methods of application, formulations, timing, weather, sampling methods, and analytical procedures now in use. These efforts will result in determining how and when pesticides can be used to protect crops from pest damage without leaving harmful residues on agricultural products consumed by animals and man.

2. New plants evaluated. The growing demand for new crops and for new germ plasm to maintain crops in the face of disease, insect, drought and other hazards is being met through the combined efforts of all State experiment stations and the Department. Research is organized under 4 regional projects with a plant introduction center for each region. In the North Central region more than 6,000 items have been grown successfully and 8,478 seed packets have been distributed to research workers. An additional 6,750 packets of tomato seed were distributed in the national cooperative disease evaluation of tomatoes. New crop plants were sought for sources of starch, oil, waxes, proteins, and fiber. Woody planting stock of 30 species and more than 50 accessions were produced for field plantings of fruits and ornamentals.

The Northeastern regional station distributed 1,538 introductions to 12 States and this season's seed increase provides 1,190 additional plant materials for the crop improvers of the United States. Pay-off introductions include a broccoli from Puerto Rico resistant to downy mildew, cucumbers from Japan resistant to mosaic, tomatoes from Germany which mature extremely early, and alfalfa from New Hampshire which may have resistance to leafhoppers.

Over 6,400 introductions were evaluated by the Southern stations, a large number of which have potential value, including a new turf grass superior to any other lawn type grass for the Southern States, and a rust-resistant rye grass from Uruguay.

Stations of the Western States received and evaluated over 2,100 materials. Many important new lines and germ plasm were found, including alfalfa and beans relatively free of mosaic and curly top, tomatoes and egg plants resistant to bacterial wilt, alfalfa resistant to spotted alfalfa aphids and stem nematodes, and drought-resistant clover.

3. Advances made in search for control of infectious bronchitis. Proof has been obtained by the Storrs (Connecticut) station that there is more than one strain of infectious bronchitis. This is of prime

importance in vaccination of poultry because research among the 12 Northeastern stations had raised serious doubt as to the efficiency of current vaccines for this disease, which may not be effective for all strains. An accurate challenge method has been developed for use in research on infectious bronchitis and an improved technique for isolating the virus will shorten the time and reduce the number of eggs to be inoculated in potency tests. The widespread occurrence of this disease and changing conditions in the poultry industry require continuous research to improve methods of disease prevention and control.

PENALTY MAIL

Under the terms of Public Law 705, approved July 14, 1956, the Department paid to the Post Office Department \$250,000 to cover postage on third and fourth class mail sent under the penalty privilege by the State agricultural experiment stations during fiscal year 1957. This payment covered the procurement of 3,157,485 envelopes, wrappers, labels, and tags by the experiment stations in the 48 States, Hawaii, Alaska, and Puerto Rico. Approximately the same volume of mail is anticipated in fiscal years 1958 and 1959.

The Hatch Act of 1887, as amended (7 U.S.C. 361f, Supp.IV), provides for the mailing under penalty indicia by agricultural experiment stations of bulletins, reports, periodicals, reprints of articles, and other publications, including lists of publications necessary for the dissemination of results of research. Mailings include not only those to individual farmers upon request but also to newspapers, libraries, other experiment stations, and organizations interested in results of research and dissemination of such results.

(c) Diseases of Animals and Poultry

Appropriation Act, 1958 and Base for	
1959 - (Transfer from CCC funds)	\$1,270,000 a/
Budget Estimate, 1959 (Transfer from CCC funds)	1,000,000 a/
Decrease in transfers	<u>-270,000</u>

a/ Eradication activities are financed by transfers from other accounts (Commodity Credit Corporation) as authorized in the annual Appropriation Act. Transfer of not to exceed \$1,270,000 for eradication of vesicular exanthema of swine is authorized for fiscal year 1958 and proposed at not to exceed \$1,000,000 for fiscal year 1959. Appropriations to reimburse the Commodity Credit Corporation for funds transferred, and interest thereon, are discussed under "Special Activities" in these justifications.

PROJECT STATEMENT

Project	1957	1958 :(estimated):	1959 :(estimated):
Eradication of vesicular exanthema of swine	\$1,355,739:	\$1,270,000:	\$1,000,000
Unobligated balance	163,638:	- - :	- -
Total available or estimate	1,519,377:	1,270,000:	1,000,000
Transfers from Commodity Credit Corporation	-1,350,000:	-1,225,739:	-1,000,000
Reappropriation of prior year balance	-50,000:	-44,261:	- -
Transferred to "Salaries and expenses, Agricultural Research Service"	+371,000:	- - :	- -
Transfer in 1958 estimates to "Salaries and expenses, Agricultural Research Service"	+3,009,623:	- - :	- -
Appropriation or estimate	3,500,000:	- - :	- -

DECREASE IN AUTHORIZED TRANSFERS

Decrease of \$270,000 in authorized transfers from other funds for eradication of vesicular exanthema of swine. It is estimated that in fiscal year 1959, authority to transfer not to exceed \$1,000,000 from the Commodity Credit Corporation will be needed for eradication of vesicular exanthema of swine. This is a reduction of \$270,000 compared with the authorization to transfer \$1,270,000 provided in the 1958 Appropriation Act.

This highly infestious disease of swine most often spreads by contact with infected swine, contaminated shipping and handling facilities, and the feeding of raw garbage. Constant surveillance must be maintained to discover new cases promptly, and the infection stamped out before it has a chance to spread to other States.

In cooperation with the States, eradication activities have progressed satisfactorily. Because of these efforts about 95 per cent of the garbage fed to swine is now being cooked and effective surveillance is maintained over movements of swine and swine products to reduce the hazards of dissemination of the disease.

Through an effective eradication program, infection was confined during fiscal year 1957 to three premises in New Jersey. These occurred on premises which had apparently been free from the disease for 21 months. For the first time, New Jersey was able to pay indemnity for the infected and exposed swine, and all swine on the three infected premises were slaughtered and the pork from them was specially processed. As of December 16, 1957, no new case of vesicular exanthema had been found for more than a year. Less than six years ago, vesicular exanthema was at epidemic proportions, with 42 States reporting infected swine herds.

Estimated costs of the program for fiscal years 1957, 1958, and 1959 are as follows:

	Fiscal Year		
	1957	1958 :(estimated):	1959 :(estimated):
Operating expenses:			
Enforcement and diagnosis	\$1,041,708:	\$950,000:	\$680,000
Inspection at stockyards	261,532:	270,000:	270,000
Total, operating expenses	1,303,240:	1,220,000:	950,000
Indemnities	52,499:	50,000:	50,000
Total	1,355,739:	1,270,000:	1,000,000

CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

Eradication activities: For expenses necessary ****, the Secretary may transfer from other appropriations or funds available to the bureaus, corporations, or agencies of the Department such sums as he may deem necessary, but not to exceed [\$1,270,000] \$1,000,000 for eradication of vesicular exanthema of swine, to be available only in an emergency which threatens the livestock or poultry industry of the country, ****.

The change would limit the funds available in fiscal year 1959 for eradication of vesicular exanthema of swine to \$1,000,000 as compared to \$1,270,000 in 1958. The satisfactory progress which has been made permits the reduction of \$270,000 without detriment to the program.



STATUS OF PROGRAM

Eradication of vesicular exanthema of swine: The States are being encouraged to make a greater number of personnel available for this work. The work in fiscal year 1958 is concentrated on (a) close surveillance over garbage-fed swine, particularly in those States having the greatest potential for a recurrence of the disease, (b) readiness to handle any new outbreaks immediately, (c) surveillance over movements of garbage-fed swine and swine products, and (d) clean-up of areas under quarantine.

The following table shows the costs of this program by fiscal years since an emergency was declared on August 1, 1952:

Fiscal Year	: Operating Expenses	: Indemnities	: Grand Total
1953	\$550,554:	\$1,662,479:	a/ \$2,213,033
1954	1,342,892:	255,089:	1,597,981
1955	1,916,894:	165,081:	2,081,975
1956	2,010,777:	81,403:	2,092,180
1957	1,303,240:	52,499:	1,355,739
1958 (estimated)	1,220,000:	50,000:	1,270,000
1959 (estimated)	950,000:	50,000:	1,000,000

a/ Does not include indirect costs at public stockyards or at serum plants for overtime, communication services, etc. Does include \$460,647 made available under "Salaries and Expenses, Agricultural Research Service".

The table and charts which follow show the national status on control of garbage-feeding as of November 30, 1957, and other information pertinent to the program.

Foot-and-Mouth Disease Eradication: Mexico has been free of foot-and-mouth disease since December 31, 1954. At present a small standby staff of American personnel is maintained in Mexico to conduct inspections and keep informed on the livestock health situation through contacts with owners, local vigilance committees, and former Commission employees. In the event of an emergency, the present staff could be immediately expended and the equipment reactivated.

The following table shows the status of funds available to the Mexican-United States Commission as of September 30, 1957, for the prevention of foot-and-mouth disease. This balance of funds available to the Commission from prior activities is used for field and laboratory examinations of suspected cases of foot-and-mouth disease.

Statement of Mexican-United States Commission for
the Prevention of Foot-and-Mouth Disease a/

	<u>Pesos</u>	<u>Pesos</u>
Payments to the Commission:		
By the United States	b/ 34,995,428	
By Mexico	c/ 2,680,920	37,676,348
Income from sale of expendable property [to be credited to United States and Mexican Section accounts]		81,843
Less expenses of Commission:		37,758,191
Cumulative through June 30, 1957	36,930,240	
From July 1, 1957 to September 30, 1957	57,131	36,987,371
Balance available as of September 30, 1957		<u>770,820</u>

The balance as of September 30, 1957 consists of:

Cash (less Mexican withholding tax and employees' bond deposits, and income and expenses on sale of liquidation property)	269,690
Cash account of United States Section of Joint Commission -- proceeds of sale of canning and rendering plant (750,000 pesos) and income from sale of surplus property (654,164 pesos) available for future payments by the United States to the Joint Commission	d/ 267,910
Receivables	1,010
Equipment	232,210
Balance available as of September 30, 1957	<u>770,820</u>

- a/ Because of variations in the rate of exchange this statement is made in pesos.
- b/ Includes 175,443 pesos contributed from proceeds of sales of equipment owned by the Eradication Commission; excludes expendable property carried on the Commission's books at a value of 132,104 pesos.
- c/ Includes 20,458 pesos contributed from proceeds of sales of equipment owned by the Eradication Commission. This has also been reduced by 44,886 pesos income from sale of surplus property of the Prevention Commission returned to the Mexican Government.
- d/ Represents 1,136,254 pesos reduction due to application of funds by the United States Section to Commission expenses.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

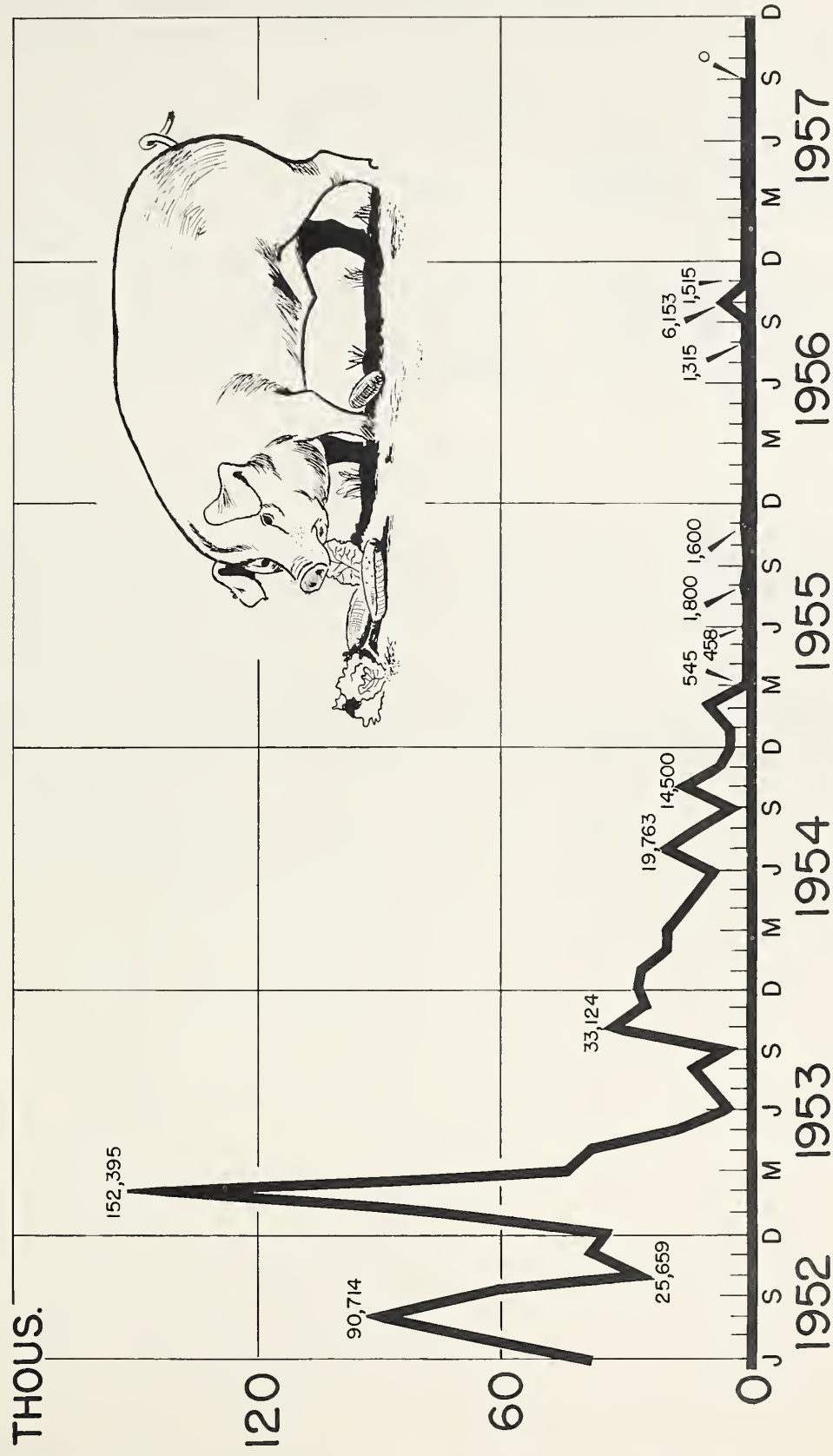
NATIONAL STATUS ON CONTROL OF GARBAGE-FEEDING AS OF
NOVEMBER 30, 1957

State	Premises Feeding Garbage	Number of Swine Fed Garbage	Premises Feeding Cooked Garbage	Number of Swine Fed Cooked Garbage	Number of Swine Fed Raw Garbage	Monthly Inspection
Alabama	432	13,620	431	13,613	7	99%
Arizona	97	8,872	88	8,646	226	89%
Arkansas	315	10,533	310	10,331	202	78%
California	336	213,604	336	213,604	0	99%
Colorado	92	34,310	92	34,310	0	92%
Connecticut	127	18,500	27	5,056	13,444	96%
Delaware	22	2,095	21	1,995	100	100%
Florida	737	43,070	703	42,329	741	99%
Georgia	502	27,718	478	27,385	333	100%
Idaho	101	6,249	101	6,249	0	100%
Illinois	213	23,844	213	23,844	0	100%
Indiana	84	9,657	84	9,657	0	91%
Iowa	81	10,530	81	10,530	0	100%
Kansas	223	8,742	223	8,742	0	91%
Kentucky	435	14,847	405	14,664	183	94%
Louisiana	609	15,855	609	15,855	0	100%
Maine	126	11,620	124	11,588	32	75%
Maryland	121	16,956	107	16,358	598	100%
Massachusetts	486	133,969	408	123,967	10,002	89%
Michigan	109	16,132	109	16,132	0	67%
Minnesota	95	13,419	95	13,419	0	100%
Mississippi	112	5,983	109	5,705	278	100%
Missouri	78	17,409	78	17,409	0	100%
Montana	28	5,476	28	5,476	0	100%
Nebraska	65	6,303	65	6,303	0	99%
Nevada	20	3,311	20	3,311	0	100%
New Hampshire	90	6,687	67	5,873	814	97%
New Jersey	346	173,273	159	142,293	30,980	100%
New Mexico	96	5,999	86	5,718	281	100%
New York	245	34,266	242	34,110	156	100%
North Carolina	852	29,957	852	29,957	0	100%
North Dakota	7	857	7	857	0	100%
Ohio	458	35,108	458	35,108	0	82%
Oklahoma	361	10,220	359	10,212	8	71%
Oregon	39	6,633	38	6,603	30	100%
Pennsylvania	249	50,008	247	49,846	162	100%
Rhode Island	58	9,924	58	9,924	0	95%
South Carolina	1,003	21,519	985	21,358	161	84%
South Dakota	40	3,432	40	3,432	0	100%
Tennessee	331	17,765	320	17,132	633	39%
Texas	1,150	87,745	1,112	79,337	8,408	93%
Utah	59	5,389	48	5,018	371	100%
Vermont	66	4,861	59	4,245	616	100%
Virginia	393	30,773	393	30,773	0	98%
Washington	59	6,964	58	6,749	215	77%
West Virginia	199	7,827	194	7,714	113	15%
Wisconsin	68	10,372	68	10,372	0	100%
Wyoming	36	2,203	36	2,203	0	100%
TOTALS	11,851	1,254,406	11,231	1,185,312	69,094	24 - 100% 24 - less than 100%

94.8% of premises feeding cooked garbage
94.5% of swine fed cooked garbage
5.5% of swine fed raw garbage

37 states reporting 90% to 100% monthly inspection

V.E. INFECTED- EXPOSED SWINE





(d) Animal Disease Laboratory Facilities

PROJECT STATEMENT

Project	1957	1958 (estimated)	1959 (estimated)
Facilities for animal disease research and control	\$706,517	\$13,236,000	\$1,250,000
Unobligated balance brought forward:	-221,079	-15,764,562	-2,528,562
Unobligated balance carried forward:	15,764,562	2,528,562	1,278,562
Total appropriation or estimate ..	16,250,000	- -	- -

STATUS OF PROGRAM

The Supplemental Appropriation Act, 1957, provided \$16,250,000 for construction of animal disease research facilities. This was in addition to the unobligated balance of \$221,079 available from the Supplemental Appropriation Act, 1956, which provided \$250,000 for initial surveys, plans, and specifications.

A 318-acre tract of land near Iowa State College, Ames, Iowa has been donated for the site. Plans and specifications are now being prepared. It is anticipated that a construction contract will be awarded late in fiscal year 1958 or early in 1959.

(e) Research Facilities

PROJECT STATEMENT

Project	1957	1958 (estimated)	1959 (estimated)
Facilities for research on foot- and-mouth and other diseases of animals	\$508,527:	\$277,090:	- -
Unobligated balance brought forward	-785,617:	-277,090:	- -
Unobligated balance carried forward	277,090:	- -	- -
Total appropriation or estimate ..	- -	- -	- -

STATUS OF PROGRAM

The Urgent Deficiency Appropriation Act, 1952, provided \$10,000,000 for the establishment of facilities for research on foot-and-mouth and other animal diseases. This was in addition to the unobligated balance of \$456,823 available from the Second Deficiency Appropriation Act, 1949, which provided \$500,000 for plans and specifications.

The main laboratory facilities, located at Plum Island, New York, were completed early in calendar year 1957, and are in operation. The remaining supporting facilities will be completed in fiscal year 1958. Facilities for breeding small animals and holding large animals will be constructed with the remaining funds.

(f) Working Capital Fund, Agricultural Research Center

This working capital fund is a continuing operating fund established by the 1951 Agricultural Appropriation Act by an appropriation of \$300,000 to finance the operating costs of certain centralized services and facilities at the Agricultural Research Center pending receipt of reimbursements for such costs from the agencies provided with the services. The integrity of the original appropriation is maintained from year to year by means of these reimbursements.

Statements reflecting the assets and liabilities, and income and expenses, of the working capital fund as of June 30, 1957, as well as estimates for 1958 and 1959, are printed in the 1959 Budget.



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts which, by November 30, 1957, were actually received or programmed for 1958 or 1959. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	Obligations, 1957	Estimated Obligations, 1958	Estimated Obligations, 1959
Allotment from:			
Watershed Protection, Soil Conservation Service:			
1. Investigations and planning	\$18,317	\$18,501	\$39,000
2. Works of improvement	74,380	75,126	54,800
3. Surveys and investigations of water resources programs	144,254	158,573	121,600
Total, Soil Conservation Service	236,951	252,200	215,400
Allocations (Advances from other Agencies):			
International Cooperation Administration:			
For training, consultation and technical assistance activities	686,573	758,820	- -
Atomic Energy Commission - Research on accumulation and movement of fission products in soils and plants..	247	- -	- -
Department of the Army:			
Chemical, biological and engineering investigations	130,972	3,105	- -
Studies, tests and experimental investigations on rice diseases and herbicides	8,939	- -	- -
Research on the defoliation of jungle vegetation and related problems	5,533	- -	- -
Research on cereal rust epidemiology..	10,181	6,819	- -
Research on formaldehyde dispenser and development of aerosol bomb to vaporize ethylene oxide	9,000	- -	- -
Total, Department of the Army	164,625	9,924	- -
Department of the Air Force - Research on formaldehyde dispenser and development of aerosol bomb to vaporize ethylene oxide	3,020	- -	- -
Department of State - Plant quarantine inspection services, Australia and New Zealand	5,250	- -	- -

(Continued on next page)

Item	: Obligations, 1957	: Estimated Obligations, 1958	: Estimated Obligations, 1959
<u>Federal Civil Defense Administration -</u>			
<u>Planning and development of programs</u>			
for protection of livestock and			
crops under defense emergency			
conditions	82,616	- -	- -
Total, Allocations	942,331	768,744	- -
<u>Trust Funds:</u>			
<u>Expenses and refunds, inspection and</u>			
<u>grading of farm products:</u>			
1. Inspection and certification of			
animal foods and inedible			
agricultural products	87,671	88,600	88,600
2. Identification service for meat			
and other products	29,703	51,500	51,500
3. Contract specification work on			
meat and meat food products	386,299	140,600	140,600
<u>Expenses, feed and attendants for</u>			
<u>animals in quarantine</u>	19,365	24,197	21,000
<u>Miscellaneous contributed funds</u>	184,485	266,241	234,866
Total, Trust Funds	707,523	571,138	536,566
<u>Obligations under Reimbursements from</u>			
<u>Governmental and Other Sources:</u>			
<u>Salaries and expenses:</u>			
Research	804,908	878,000	646,000
Plant and animal disease and pest			
control	633,435	599,950	603,900
Meat inspection	6,463,103	6,472,000	6,472,000
Miscellaneous services to other accounts	154,927	151,812	142,200
Total, Salaries and expenses	8,056,373	8,101,762	7,864,100
Other appropriations	8,197	- -	- -
Total, Obligations under reimburse-			
ments	8,064,570	8,101,762	7,864,100
<u>TOTAL, OBLIGATIONS UNDER ALLOTMENTS</u>			
<u>AND OTHER FUNDS</u>	9,951,375	9,693,844	8,616,066

PASSENGER MOTOR VEHICLES

The 1959 Budget Estimates propose the purchase of four additional passenger motor vehicles and the replacement of 254 such vehicles.

Additional Vehicles

Four additional passenger motor vehicles are required for plant quarantine inspection work in Florida, which is being taken over from the State as of June 30, 1958. The vehicles will be needed for travel by inspectors to and from airports, docks, and post offices at irregular hours determined by arrival of planes and ships.

Present passenger vehicles are needed for current research, control and regulatory programs.

Replacements

All passenger vehicles to be replaced will either have mileage of more than 60,000 or be 6 or more years old. A detailed justification of the proposed replacements follows:

Research: Replacements would be made of 68 of the 430 passenger motor vehicles operated at field stations engaged in research. These vehicles are used in travel where no public transportation is available, such as to farms, ranches, cooperating experiment stations, etc., and in travel to remote sections of large stations. They are essential for collecting experimental data and materials necessary for facilitating research work.

Plant and Animal Disease and Pest Control: Replacement would be made of 181 of the 767 passenger motor vehicles of which approximately 90% are operated in daily farm-to-farm travel in the control and eradication of tuberculosis, brucellosis, sheep scabies, cattle tick fever, hog cholera, and various plant pest control programs. About 10% are operated in travel on animal and plant quarantine work principally along the borders of the country. The rough and rugged roads over which much of daily farm travel is performed, in all kinds of weather, are very hard on cars. In order to keep them in safe and dependable operating condition, maintenance costs are frequently high. However, the testing and inspection cannot be carried on without them. In most cases, employees who own cars are reluctant to use them for even limited periods because of the hard usage to which they are subjected in this work. The replacements recommended will make it possible for those cars to be replaced which are reaching inoperable condition.

Meat Inspection: Replacement would be made of 4 of the 25 passenger motor vehicles used for meat inspection work. They are used by inspectors and their supervisors in visiting meat packing plants under Federal inspection. These plants, for the most part, are located where use of public transportation would cause undue delays. The use of automobiles enables inspectors to cover inspection needs more efficiently and saves personnel. For example, where one man with a car can cover two establishments 40 miles apart, without a car it would be necessary to have a man in each plant.

Working Capital Fund - Agricultural Research Center: Replacement is proposed of 1 of the 5-passenger motor vehicles used at the Agricultural Research Center, Beltsville, Maryland. These vehicles are used for transportation in supervising and inspecting the maintenance and operation of the Agricultural Research Center and for transporting officials and visiting agricultural leaders to and from various sections of the Center.

Age and Mileage Data

The widely diversified research and regulatory activities and the varying nature of the areas in which cars are operated make it impractical to establish standards for car utilization on a mileage basis or on the basis of number of employees. Cars are a necessity for carrying workers expeditiously to the scattered sites of testing, inspection and observation work.

Age and mileage data for passenger carrying vehicles on hand as of June 30, 1957:

<u>Age Data</u>			<u>Mileage Data</u>		
<u>Age-Year Model</u>	<u>Number of Vehicles</u>	<u>Percent of Total</u>	<u>Lifetime Mileage (thousands)</u>	<u>Number of Vehicles</u>	<u>Percent of Total</u>
1950 or older	115	9	Under 20	464	37
1951	58	4	20-40	300	24
1952	47	4	40-60	276	22
1953	160	13	60-80	142	11
1954	39	3	80-100	66	5
1955	247	20	Over 100	18	1
1956	296	23			
1957	<u>304</u>	<u>24</u>			
Totals	<u>1,266 *</u>	<u>100</u>		<u>1,266 *</u>	<u>100</u>

* Excludes 11 vehicles used in foreign countries.

Additions

The purchase of one additional small aircraft is proposed for use for plant pest control activities. The five aircraft currently used for such work are inadequate to meet program requirements. During the past year it was necessary to spend approximately \$15,000 for the lease of aircraft which were not adapted to program needs nor always available when needed. This has handicapped operations. With the increased workload due to the screwworm, fire ant, and other control programs, an additional plane is urgently needed. It would be a four-place observation plane designed specifically for agricultural work and equipped for spraying and dusting operations.

Replacements

Authority is requested to replace one small airplane used for developing technical procedures for aerial contract specifications and control operations on plant pest control activities. It would replace a small two-place plane, purchased in 1952. The new plane would be safer to operate and would be much more efficient for pest control work.



- 140 -
EXTENSION SERVICE

Purpose Statement

Cooperative agricultural extension work was established by the Act of May 8, 1914, as amended by the Act of June 26, 1953, (7 U.S.C. 341-348), and the Act of August 11, 1955, (7 U.S.C. 347a), to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics and to encourage the application of such information. The acts authorize the Department of Agriculture to give, through the Land-Grant Colleges, instruction and practical demonstrations in agriculture and home economics and related subjects to persons not attending or resident in the colleges, by means of demonstrations, publications, and otherwise. Extension educational work is also authorized under the Agricultural Marketing Act of 1946 (7 U.S.C. 1621-1627).

Cooperative agricultural extension work is carried on by incorporating research results, technological advancements, and situation and program facts of the Department of Agriculture and the agricultural colleges and experiment stations into a national educational program to provide the means by which people can effectively solve their farm, home, marketing and related problems.

Among the major objectives of this work are to:

1. Assist producers to apply the results of research and advancing technology to increase farm efficiency and farm income.
2. Assist people to adjust the use of their agricultural resources in line with effective market demand.
3. Assist farmers to develop, improve and conserve agricultural resources.
4. Assist producers and managers of marketing firms to expand markets for agricultural products.
5. Assist marketing firms to apply the results of research and advancing technology to reduce marketing costs and increase marketing efficiency.
6. Improve home management and family and community living.
7. Assist farm families to effectively appraise the off-farm forces affecting their operations.
8. Develop an informed and competent rural youth through 4-H Club work.

9. Assist local groups to appraise area problems and opportunities and develop organized programs of self-help in the interest of both individual family and group welfare.

The cooperative extension service is financed from Federal, State, county and local sources. These funds are used within the States for the employment of county agents, home demonstration agents, 4-H Club agents, State specialists and others who conduct among rural people the joint educational programs adapted to local problems and conditions.

The Federal Extension Service, the educational arm of the United States Department of Agriculture, provides leadership, counsel and assistance to the Extension Services in the 48 States, and Hawaii, Alaska and Puerto Rico including county extension offices in more than 3,000 counties. The Federal Extension Service, as a partner in the cooperative extension effort, is responsible for administering Federal laws authorizing extension work; helping to maintain a modern, efficient and dynamic extension system in each State and Territory; coordinating the work among the States in cooperation with committees of State Directors and through other means; pioneering in new educational methods; evaluating the results of work performed; maintaining liaison with research, service, adjustment, and regulatory agencies of the Department; coordinating all educational work of the Department; and cooperating with other departments of Government and private organizations in matters relating to extension education.

On November 30, 1957, there were approximately 14,000 extension field agents under cooperative appointment and 251 Federal employees, 241 of whom were headquartered in Washington.

	Appropriated, 1958	Budget Estimates, 1959
Appropriated funds:		
Payments to States, Hawaii, Alaska, and Puerto Rico	\$50,715,000	\$50,715,000
Retirement costs for extension agents	5,260,000	5,479,375
Penalty mail	2,164,000	1,868,480
Federal Extension Service	2,096,540	2,096,540
Total, appropriated funds	<u>60,235,540</u>	<u>60,159,395</u>

Cooperative Extension Work, Payments and Expenses

	<u>Payments to States, Hawaii, Alaska, and Puerto Rico</u>	<u>Retirement Costs for Extension Agents</u>	<u>Penalty Mail</u>	<u>Federal Extension Service</u>	<u>Total</u>
Appropriation Act, 1958 and base for 1959 ...	\$50,715,000	\$5,260,000	\$2,164,000	\$2,096,540	\$60,235,540
Budget Esti- mate, 1959 .	<u>50,715,000</u>	<u>5,479,375</u>	<u>1,868,480</u>	<u>2,096,540</u>	<u>60,159,395</u>
Increase or decrease ...	<u>- -</u>	<u>+219,375</u>	<u>-295,520</u>	<u>- -</u>	<u>-76,145</u>

SUMMARY OF INCREASES AND DECREASES, 1959

Retirement Costs for Extension Agents:

To provide for employer's share of Federal contributions to the retirement fund for cooperative extension agents pursuant to Public Law 854	+219,375
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Penalty Mail:

Decrease in the cost of penalty mail for cooperative extension agents and State Extension Directors	-295,520
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PROJECT STATEMENT

Project	1957	1958 (estimated)	Increases or Decreases	1959 (estimated)
1. Payments to States, Hawaii, Alaska, and Puerto Rico:				
(a) Payments for cooperative agri- cultural extension work under Smith- Lever Act	\$47,048,430	\$49,220,000	- -	\$49,220,000
(b) Payments and contracts under the Agricultural Market- ing Act	1,455,489	1,495,000	- -	1,495,000
2. Retirement costs for extension agents	- -	5,260,000	+\$219,375(1)	5,479,375
3. Penalty mail (for extension agents and State Extension Directors)	2,164,000	2,164,000	-295,520(2)	1,868,480
4. Federal Extension Service	1,949,007	2,096,540	- -	2,096,540
Unobligated balance	648,074	- -	- -	- -
Total available or estimate	53,265,000	60,235,540	-76,145	60,159,395
Transferred to "State Experiment Stations, Agricultural Research Service"	+250,000			
Total appropriation	53,515,000			

INCREASES AND DECREASES

The net decrease of \$76,145 under this appropriation for 1959 consists of the following:

- (1) An increase of \$219,375 for Federal contributions to retirement fund for cooperative extension agents pursuant to Public Law 854.

Cooperative extension agents are joint employees of the United States Department of Agriculture and the cooperating land-grant institutions. They hold appointments under Civil Service Commission Regulation A-6, III(a)(1). Such appointments place them under the provisions of the United States Civil Service Retirement Act, with employee contributions and benefits based on total salary received from the cooperating partners. For fiscal year 1958 the employer's contribution to the Federal retirement fund, to match contributions of these agents, was provided by a Federal appropriation to the Federal Extension Service.

Based on anticipated salary adjustments and additional personnel to be employed during the remaining months of fiscal year 1958, the June, 1958 rate of obligation for the employer's matching retirement costs will be approximately \$438,400. Applying the June, 1958 rate for 12 months of fiscal year 1959 results in an employer's contribution amount of \$5,260,000.

In addition, it is estimated that 75% of the anticipated State and county increase of \$4,500,000 for fiscal year 1959, will be used for salary increases and additional personnel subject to the Retirement Act, thereby requiring an increase in retirement contributions of \$219,375 over 1958. This increase when added to the June, 1958 level for 12 months will require an appropriation of \$5,479,375 to meet employer's matching retirement costs for 1959.

- (2) A decrease of \$295,520 in the cost of penalty mail for State Extension Directors and cooperative extension agents for fiscal year 1959 is composed of the following:

- (a) Decrease of \$110,020 for State Directors' penalty mail.

Under the Acts of May 8 and June 30, 1914, free mailing privileges were granted to State Extension Directors by the Post Office Department permitting them to mail official matter without postage at the Post Office where the State Extension Service is located. However, the Act of July 14, 1956 (Public Law 705) required reimbursement to the Post Office Department for the cost of mailings of State Extension Directors out of appropriations made for such purpose. In fiscal year 1958 an appropriation of \$514,000 was made for this purpose, based on analysis of records maintained by the Post Office Department.

For estimating future penalty mail obligations for State Extension Directors, a more simplified and practical method was worked out and approved by the Post Office Department whereby the reimbursement to the Post Office Department would be based on the following factors:

- (1) The number of penalty indicia items procured by the State Extension Directors during the most recent year figures are available.
- (2) Applying to this, a unit cost factor which has been determined on the basis of a scientific sample of State Extension Directors' mailings. This has resulted in estimated needs for fiscal year 1959, as follows:

6,681,800 pieces at an average rate of 6.046¢
per piece \$403,980

(b) Decrease of \$185,500 for cooperative extension agents' penalty mail.

Since the establishment of the Cooperative Extension Service in 1914, cooperative extension agents have used the free mailing privilege in conducting cooperative extension work.

On August 15, 1953, Public Law 286 (83rd Congress), provided for the abolishment of certain free transmission of official Government mail matter and provided for the transfer to the Post Office Department, as postal revenue out of agency appropriations, an amount to cover mailing. For fiscal year 1958 an appropriation of \$1,650,000 was provided for this purpose.

In 1956, a revised procedure in determining mailing costs, concurred in by the Post Office Department, was adopted. This provided for the following factors to be used in determining the cost of mailings by cooperative extension agents:

- (1) The number of penalty indicia procured for use by cooperative extension agents during the most recent year, adjusted to include anticipated changes in program level, and
- (2) Applying to this, a unit cost which has been determined on the basis of a scientific sample. This procedure results in an estimated cost for 1959 as follows:

61,793,000 pieces at an average rate of 2.37¢
per piece \$1,464,500

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- Payments to States, Hawaii, Alaska, and Puerto Rico: For payments for cooperative agricultural extension work under the Smith-Lever Act, as amended by the Act of June 26, 1953 (7 U.S.C. 341-348), and the Act of August 11, 1955 [(69 Stat. 683-4)] (7 U.S.C. 347a), \$49,220,000; * * *

- Federal Extension Service: For administration of the Smith-Lever Act, as amended by the Act of June 26, 1953 (7 U.S.C. 341-348), and the Act of August 11, 1955 [(69 Stat. 683-4)] (7 U.S.C. 347a), and extension aspects of the Agricultural Marketing Act of 1946 (7 U.S.C. 1621-1627), and to coordinate and provide program leadership for the extension work of the Department and the several States, Territories, and insular possessions, \$2,096,540.

The first and second changes in language substitute the U. S. Code citation for the Statutes at Large reference to the Act of August 11, 1955, (Public Law 360).

PAYMENTS TO STATES AND TERRITORIES

Federal funds available for fiscal year 1958 for cooperative agricultural extension work within the States, Hawaii, Alaska, and Puerto Rico under the Smith-Lever Act, as amended (\$49,220,000), and for carrying out the provisions of the Agricultural Marketing Act (\$1,355,000 for payments to States and \$140,000 for contracts) total \$50,715,000.

Payments to the States and Territories are made directly to a designated officer in each State and Territory and the funds are disbursed by them in accordance with budgets and programs of work submitted by the State directors of extension and approved by the Administrator of the Federal Extension Service on behalf of the Secretary of Agriculture. As reflected on Table II, at present slightly less than 40 percent of the cost of extension work is being financed from Federal sources and more than 60 percent from State and local sources. The funds are used by the States for the employment of extension workers to carry on cooperative agricultural extension work. Paid extension workers are being assisted by a network of voluntary neighborhood leaders who cooperate in carrying out extension programs.

The use of these funds is indicated in greater detail in the following tables. Table I reflects estimated allotments to States and Territories on the basis of rural and farm population. Table II indicates the sources of funds allotted for cooperative extension work in the States, Alaska, Hawaii, and Puerto Rico for 1957, including allotments under the Agricultural Marketing Act. Table III shows estimated direct payments to and contracts with States and Territories for 1958, indicating those which require offset from State and local funds, those where such offset is not required, and the basis of allotment. Table IV indicates the various classes of field agents employed with extension funds.

EXTENSION SERVICE APPROPRIATIONS FOR THE
STATES, HAWAII, ALASKA AND PUERTO RICO

Table I.

	1958	INCREASES OR DECREASES 1959	TOTAL PROPOSED FOR 1959
Payments to States based on rural and farm population Smith-Lever Act, Sec. 3(b) & 3(c)2:			
Alabama	\$ 1,750,776	-	\$ 1,750,776
Arizona	235,729	-	235,729
Arkansas	1,431,327	-	1,431,327
California	1,209,203	-	1,209,203
Colorado	441,026	-	441,026
Connecticut	251,465	-	251,465
Delaware	122,218	-	122,218
Florida	569,560	-	569,560
Georgia	1,829,134	-	1,829,134
Idaho	333,700	-	333,700
Illinois	1,477,600	-	1,477,600
Indiana	1,228,413	-	1,228,413
Iowa	1,333,139	-	1,333,139
Kansas	900,354	-	900,354
Kentucky	1,721,368	-	1,721,368
Louisiana	1,141,793	-	1,141,793
Maine	325,541	-	325,541
Maryland	456,427	-	456,427
Massachusetts	354,345	-	354,345
Michigan	1,345,266	-	1,345,266
Minnesota	1,275,849	-	1,275,849
Mississippi	1,801,043	-	1,801,043
Missouri	1,510,938	-	1,510,938
Montana	332,029	-	332,029
Nebraska	755,086	-	755,086
Nevada	93,627	-	93,627
New Hampshire	171,664	-	171,664
New Jersey	349,868	-	349,868
New Mexico	302,170	-	302,170
New York	1,268,037	-	1,268,037
North Carolina	2,335,325	-	2,335,325
North Dakota	516,977	-	516,977
Ohio	1,673,608	-	1,673,608
Oklahoma	1,217,996	-	1,217,996
Oregon	475,249	-	475,249
Pennsylvania	1,659,259	-	1,659,259
Rhode Island	94,926	-	94,926
South Carolina	1,262,016	-	1,262,016
South Dakota	518,314	-	518,314
Tennessee	1,741,341	-	1,741,341
Texas	2,804,456	-	2,804,456
Utah	224,415	-	224,415
Vermont	215,214	-	215,214
Virginia	1,416,507	-	1,416,507
Washington	590,823	-	590,823
West Virginia	874,729	-	874,729
Wisconsin	1,269,508	-	1,269,508
Wyoming	175,028	-	175,028
Alaska	73,752	-	73,752
Hawaii	233,841	-	233,841
Puerto Rico	1,480,712	-	1,480,712
Subtotal	47,172,691	-	47,172,691
Special need funds Sec. 3(b) and 3(c)1 of Smith-Lever Act			
	1,157,309	-	1,157,309
Smith-Lever Act, Sec. 8 funds			
	890,000	-	890,000
Agricultural Marketing Act funds (including contracts)			
	1,495,000	-	1,495,000
Total Payments and Contracts			
	50,715,000	-	50,715,000
Retirement Costs:			
Federal share of retire- ment costs for cooperative extension employees	5,260,000	219,375	5,479,375
Penalty Mail:			
Reimbursement to Post Office for penalty mail for Extension Service	2,164,000	- 295,520	1,868,480
Grand Total	\$58,139,000	- \$76,145	\$58,062,855



TABLE II.

U. S. DEPARTMENT OF AGRICULTURE
FEDERAL EXTENSION SERVICESOURCES OF FUNDS AVAILABLE FOR COOPERATIVE EXTENSION WORK IN STATES, HAWAII, ALASKA, AND PUERTO RICO
FOR THE FISCAL YEAR ENDING JUNE 30, 1958

STATES	GRAND TOTAL	TOTAL FEDERAL FUNDS	TOTAL WITHIN THE STATES	FUNDS FROM FEDERAL SOURCES		STATE AND COLLEGE	FROM COUNTY	THE STATES
				SMITH-LEVER ACT AS AMENDED	AGRICULTURAL MARKETING ACT* (TITLE II)			NON-TAX SOURCES
Alabama	\$ 3,471,569.54	\$ 1,802,165.54	\$ 1,669,404.00	\$ 1,771,395.54	\$ 30,770.00	\$ 971,155.00	\$ 698,249.00	\$ -
Arizona	788,794.46	307,728.21	481,066.25	307,728.21	-	417,236.25	63,830.00	-
Arkansas	3,049,028.44	1,493,033.44	1,555,995.00	1,470,333.44	22,700.00	1,108,038.00	387,557.00	60,400.00
California	5,889,434.43	1,275,970.44	4,613,463.99	1,236,202.44	39,768.00	3,316,749.99	1,296,714.00	-
Colorado	1,466,346.36	512,879.36	953,467.00	506,279.36	6,600.00	493,912.00	459,555.00	-
Connecticut	846,039.92	259,725.92	586,314.00	251,465.92	8,260.00	340,755.00	231,615.00	13,944.00
Delaware	313,081.88	150,668.88	162,413.00	131,068.88	19,600.00	147,305.00	5,500.00	9,608.00
Florida	2,403,223.54	600,680.54	1,802,543.00	580,760.54	19,920.00	1,059,217.00	743,326.00	-
Georgia	4,101,213.89	1,966,165.89	2,135,048.00	1,921,780.89	44,385.00	1,168,208.00	961,440.00	5,700.00
Idaho	1,224,492.00	382,499.80	841,992.20	375,699.80	6,800.00	521,742.20	294,200.00	26,050.00
Illinois	4,184,899.47	1,510,899.47	2,674,000.00	1,481,999.47	28,900.00	1,605,425.00	-	1,068,575.00
Indiana	3,373,691.29	1,276,197.29	2,097,494.00	1,235,197.29	41,000.00	1,055,870.00	1,041,624.00	-
Iowa	4,029,810.70	1,379,739.70	2,650,071.00	1,333,139.70	46,600.00	1,155,406.00	1,494,665.00	-
Kansas	3,439,167.00	984,854.00	2,454,313.00	939,854.00	45,000.00	669,578.00	1,724,900.00	59,835.00
Kentucky	3,113,884.82	1,811,911.70	1,301,973.12	1,779,611.70	32,300.00	828,000.00	473,973.12	-
Louisiana	3,425,943.91	1,228,016.03	2,197,927.88	1,178,516.03	49,500.00	1,911,335.35	276,857.53	9,735.00
Maine	780,696.57	359,289.37	421,407.20	340,839.37	18,450.00	287,829.20	133,578.00	-
Maryland	2,071,729.55	514,861.55	1,556,868.00	474,211.55	40,650.00	1,225,208.00	331,660.00	-
Massachusetts	1,534,347.90	394,344.95	1,140,002.95	354,344.95	40,000.00	421,546.42	718,456.53	-
Michigan	4,578,383.23	1,514,726.23	3,063,657.00	1,373,726.23	141,000.00	2,207,000.00	777,381.00	79,276.00
Minnesota	2,643,995.18	1,332,311.95	1,311,683.23	1,304,161.95	28,150.00	630,075.00	678,108.23	3,500.00
Mississippi	3,566,793.50	1,905,674.64	1,661,118.86	1,875,658.64	30,016.00	867,833.94	743,694.92	49,590.00
Missouri	3,368,153.81	1,655,975.76	1,712,178.05	1,588,875.76	67,100.00	950,000.00	622,631.00	139,547.05
Montana	1,302,722.54	420,328.54	882,394.00	410,328.54	10,000.00	466,568.00	415,826.00	-
Nebraska	2,044,494.90	812,085.39	1,232,409.51	801,785.39	10,300.00	785,409.51	447,000.00	-
Nevada	461,318.28	185,276.18	276,042.10	180,326.18	4,950.00	177,844.10	98,198.00	-
New Hampshire	552,635.73	180,191.98	372,443.75	171,664.98	8,527.00	232,227.75	140,216.00	-
New Jersey	1,682,448.88	367,368.10	1,315,080.78	349,868.10	17,500.00	734,515.00	576,869.78	3,696.00
New Mexico	1,066,998.80	426,558.80	640,440.00	402,798.80	23,760.00	495,440.00	145,000.00	-
New York	6,136,174.00	1,306,288.11	4,829,885.89	1,268,038.11	38,250.00	2,088,056.81	2,385,302.13	356,526.95
North Carolina	6,492,040.44	2,473,308.44	4,018,732.00	2,398,308.44	75,000.00	2,598,496.00	1,420,236.00	-
North Dakota	1,242,938.32	568,934.82	674,003.50	553,976.82	14,958.00	258,079.50	415,924.00	-
Ohio	3,434,694.60	1,732,055.60	1,702,639.00	1,695,887.60	36,168.00	884,654.00	771,609.00	46,376.00
Oklahoma	3,161,214.09	1,337,178.09	1,824,036.00	1,271,828.09	65,350.00	1,200,236.00	597,684.00	26,116.00
Oregon	2,860,194.85	584,207.00	2,275,987.85	540,239.00	43,968.00	1,714,531.85	561,456.00	-
Pennsylvania	3,642,792.13	1,697,764.13	1,945,028.00	1,672,284.13	25,480.00	1,442,784.00	500,000.00	2,244.00
Rhode Island	235,671.00	98,987.10	136,683.90	94,927.10	4,060.00	108,658.00	23,550.00	4,475.90
South Carolina	2,426,518.74	1,293,497.90	1,133,020.84	1,285,997.90	7,500.00	975,000.00	151,180.84	6,840.00
South Dakota	1,412,524.50	559,864.50	852,660.00	554,314.50	5,550.00	617,320.00	217,900.00	17,440.00
Tennessee	3,232,408.27	1,796,077.27	1,436,331.00	1,768,077.27	28,000.00	927,000.00	509,331.00	-
Texas	6,075,326.66	2,844,525.61	3,230,801.05	2,840,325.61	4,200.00	1,300,142.50	1,929,438.55	1,220.00
Utah	810,316.50	315,515.70	494,800.80	299,415.70	16,100.00	350,820.00	143,980.80	-
Vermont	676,205.01	235,493.97	440,711.04	227,213.97	8,280.00	333,618.04	107,093.00	-
Virginia	3,641,586.22	1,445,775.22	2,195,811.00	1,433,415.22	12,360.00	1,749,680.00	446,131.00	-
Washington	2,119,602.38	697,393.05	1,422,209.33	671,223.05	26,170.00	873,054.44	548,854.89	300.00
West Virginia	1,639,445.47	919,426.60	720,018.87	915,426.60	4,000.00	423,034.00	293,634.87	3,350.00
Wisconsin	3,448,115.35	1,335,557.35	2,112,558.00	1,303,257.35	32,300.00	921,779.00	1,190,779.00	-
Wyoming	838,456.93	266,778.34	571,678.59	262,478.34	4,300.00	409,899.59	161,779.00	-
Alaska	206,481.93	95,251.49	111,230.44	92,751.49	2,500.00	111,230.44	-	-
Hawaii	771,033.58	251,840.09	519,193.49	233,840.09	18,000.00	519,193.49	-	-
Puerto Rico	2,430,681.31	1,496,711.31	933,970.00	1,496,711.31	-	933,970.00	-	-
Unallotted	210,438.66	210,438.66	-	210,438.66	-	-	-	-
AMA Contracts	140,000.00	140,000.00	-	-	140,000.00	-	-	-
Total funds allotted to States, Hawaii, Alaska, and Puerto Rico	\$128,060,201.46	\$50,715,000.00	\$77,345,201.46	\$49,220,000.00	\$1,495,000.00	\$46,992,667.37	\$28,358,189.19	\$1,994,344.90
Federal appropriation to match cooperative extension agents' contribution to U. S. Civil Service Retirement fund	5,260,000.00	5,260,000.00	-	-	-	-	-	-
Federal appropriation to reimburse Post Office Department for use of penalty mail by State Extension Directors and cooperative extension agents	2,164,000.00	2,164,000.00	-	-	-	-	-	-
GRAND TOTAL	\$135,484,201.46	\$58,139,000.00	\$77,345,201.46	\$49,220,000.00	\$1,495,000.00	\$46,992,667.37	\$28,358,189.19	\$1,994,344.90

*Preliminary Distribution

Table III. Statement of direct payments to and contracts with States, Hawaii, Alaska, and Puerto Rico, indicating those requiring offset by States and Territories, those not requiring such offset, and basis of distribution as estimated for 1959.

Item	Total Estimate 1959	Basis of Allotment	Amount paid without offset	Amount requiring offset
Payments to States, Hawaii, Alaska, and Puerto Rico ..	\$49,220,000:			
Smith-Lever Act Section 3(b)		\$31,597,279-Frozen:	\$14,513,808:	\$17,083,471
		by Sec. 3(b) of		
		Public Law 83		
		\$300,000-for Puerto		300,000
		Rico; specified		
		by law		
Section 3(c)		\$16,432,721		16,432,721
		(7,887,706-Farm		
		pop.)		
		(7,887,706-Rural:		
		pop.)		
		(657,309-Special:		
		needs)		
Section 8		\$890,000-Rural	890,000:	
		Development; on		
		basis of special:		
		needs		
Payments and contracts under the Agricultural Marketing Act	1,495,000:	\$1,495,000-Basis of:	<u>1/</u> 140,000:	1,355,000
		approved projects		
		and contracts		
Total, direct Federal payments .	50,715,000:	50,715,000	15,543,808:	35,171,192

1/ Regional marketing contracts.

Table IV. Extension field agents under cooperative appointment with United States Department of Agriculture, June 30, 1955, 1956, 1957. (Extension workers not under appointment are excluded)

	: June 30,	: June 30,	: June 30,
	: 1955	: 1956	: 1957
<u>STATE WORKERS:</u>	:	:	:
Directors and Administrative personnel	: 203	: 195	: 195
Specialists	: 1,982	: 2,141	: 2,171
Total, State staff	: 2,185	: 2,336	: 2,366
<u>COUNTY WORKERS:</u>	:	:	:
Supervisors	: 684	: 709	: 746
Agricultural Agents (a)	: 6,482	: 6,658	: 6,951
Home Economics Agents (a)	: 4,064	: 4,083	: 4,053
Total, County staff	: 11,230	: 11,450	: 11,750
<u>GRAND TOTAL</u>	: 13,415	: 13,786	: 14,116

(a) Includes Club Agents

Number of agricultural counties in the
States, Hawaii, Alaska, and Puerto Rico ... 3,163
Number of agricultural counties served
by county extension agents 3,074

STATUS OF PROGRAM

General: The Cooperative Extension Service is the educational program which links farmers, homemakers and marketing firms with the research facilities of the United States Department of Agriculture and the State agricultural colleges. Cooperative extension work in agriculture and home economics is out-of-school education, conducted by the Department of Agriculture in cooperation with Land-Grant Colleges and county governments. The basic objective of extension work is to help people increase their managerial and technical skills and thereby improve their economic status, family and community life.

Extension personnel furnish farm people and other groups with information on research and farm program facts, and help them apply an ever-widening range of scientific knowledge in agriculture and home economics

The Federal Extension Service administers the nationwide system of extension work, through the Land-Grant Colleges and Universities under Federal laws governing this work. It coordinates the educational activities of the Department of Agriculture and provides national leadership to insure an up-to-date, progressive, highly productive and efficient educational program. This requires close liaison with research and action agencies of the Department. As coordinator of the educational work of the Department, Federal Extension Service integrates such work into educational work of the States and counties, and works closely with other departments of Government and national, private and public organizations and groups so that all national effort of significance is coordinated with extension work in each State and Territory.

- I. Three major program activities of the Extension Service demonstrate its efforts to help rural people adjust to conditions of rapid economic growth and complex technological changes and to help marketing firms apply results of advancing research to reduce waste, preserve quality, and increase marketing efficiency. These activities are: (A) Educational assistance to farm families; (B) County program determination by local people; and (C) Educational work in marketing and utilization of agricultural products.
- A. Educational assistance to farm families provides them with needed counsel and assistance in an organized and intensive way. This enables these families to:
 1. Identify and analyze effectively all their major farm and home situations and opportunities.
 2. Determine a definite course of action which will produce maximum continuing economic returns and family satisfaction.

3. Effectuate such plans as rapidly as feasible.
4. Adjust plans wisely as circumstances warrant in light of changing conditions and all pertinent research information available.
5. Effect group action on a community, county or area basis on problems best solved by group action.

The emphasis is to help families improve their ability to make their own analyses and appropriate decisions; to choose proper courses of action; and to carry out this action in an efficient and orderly manner. The emphasis on this method does not mean abandoning Extension's other time-proven methods of reaching farm families, which continue to be used effectively.

Last year 75 percent of all counties reported additional emphasis on this more intensive method of doing extension work, an increase of 10 percent over the previous year. In 1956, 44 States reported 20 percent more families participated than in 1955.

To measure progress of this method, carefully planned studies are under way in six States. Six other States have work under way to collect facts to guide the current effort and measure progress of participating families.

During fiscal year 1957, Extension intensified its educational effort in 57 economically disadvantaged counties or areas in 24 States. This was done in close cooperation with other agencies and organizations in those counties.

Educational work to meet special problems with farm families in disadvantaged areas, now in the second year, is a demonstrational effort to apply extension work on a more intensive basis. It is stimulating local leaders to combine their efforts in taking stock of area resources. The Extension Service is providing the leadership in these group efforts by helping people organize for local action. This work is gaining momentum as accomplishments through teamwork by local and State leaders become apparent.

There are now thirty States and Puerto Rico participating. Sixty-two counties and nine areas have approved programs for this rural development work. Table A shows the areas where this program is being conducted.

This program is a demonstrational or pilot effort. It is not contemplated that it will be extended to all counties, nor continued on a permanent basis as such over a long period in the pilot counties. It is hoped that after a period of four or five years it can be sustained on a local basis by local resources.

[illegible]

CEORO ARRIBA
(TRAQE AREA)

USDA FES MD-250 (9/57)

TABLE A

Rural Development Pilot Counties



- B. County program determination by local people is program planning on both a short and longtime basis, for which Extension provides leadership and guidance. It is characterized by:
1. Involvement of many individuals and representatives of organized groups such as the 4-H Club Council, Livestock Association, County and Home Demonstration Agents' Committee, Dairy Herd Improvement Association and County Teachers' Association in a systematic planning effort.
 2. Critical study and analysis by local people of their present use of resources and opportunities for sound adjustment. This is based on careful interpretation of all available pertinent information as related to family, community and county situations, needs and problems.
 3. Development by the people of a comprehensive longtime plan, to achieve the goals they establish for themselves.
- C. Extension's educational work in marketing and utilization of agricultural products benefits farmers, processors, retailers and consumers.

Extension's work in marketing and utilization helps increase returns to farmers by reducing marketing costs and expanding markets for farm products. It helps farmers (1) decide on the best time, place and form in which to sell; (2) use the best grading and packing methods; and (3) develop organizations for effective and efficient selling.

Work with processors on utilization helps them use research results to produce new products and increase processing efficiency. By helping wholesalers and retailers use research results in their operations, Extension helps reduce marketing costs.

By informing consumers about local supplies of seasonal commodities, Extension helps them adjust purchases. This provides greater stability of prices and increased consumption during periods of heavy supply.

Food buyers, also, are helped to use their resources efficiently in providing adequate, balanced diets for their families.

Through competition, increased efficiency in marketing results in improved prices to producers and savings to consumers.

II. Selected Examples of Recent Extension Progress:

Developments in Kentucky: A survey was made of families who had participated for two years in the Extension Farm and Home Development program in the Knob region of the Appalachian chain. In that region, hillsides are steep and valleys are narrow with poorly drained bottom land. These families as a group increased their net income by 11 percent during the past two years, when most farmers suffered a decline in farm income.

Developments in North Carolina: Families in Cleveland County, one of the big cotton counties, increased gross income an average of \$2,766 per farm during 1954-56, in spite of the falling prices. In some cases farmers increased their net income fivefold in two years. They did this by adding new enterprises and doing a better job with existing ones. Work in this county started late in 1954.

Extension Technical Assistance Aids Farmers:

Improved Practices with Corn: While corn is a leading grain crop in America, it also has been one of the most soil-depleting crops. It has cost as much as a ton of eroded soil for every bushel of grain grown on sloping lands by former methods.

Virginia farmers met this problem by a many-pronged attack, based on a sound extension program. They used every facility available, such as ACP, SCS, and TVA, but relied on a well-rounded extension educational program to coordinate all contributing factors and acquaint individual farmers with ways to improve their situation.

An important reduction in acreage resulted from educational efforts on this problem. In 1935, Virginia farmers produced 36 million bushels of corn, compared to 39 million bushels in 1956. In 1935, their acreage in corn was 1,501,000 while last year it was only 822,000, a 45 percent reduction. That is, 4 acres in 10 freed from the depleting effect of corn. Most of these 4 acres went to hay and pasture, reducing the corn needed for livestock, and at the same time improving the soil.

Potato Blight Service Lowers Production Costs in Pennsylvania \$29.50 an Acre: The Pennsylvania Extension Service established a potato blight spray service based on weather conditions and blight in the area. Results

checked on 20 farms in the southeastern part of the State showed the spray service effectively controlled blight without reducing yields, and lowered production costs \$29.50 an acre. That would mean a saving of \$1,475,000 for the 50,000 acres grown in the State, if all commercial growers had followed the recommendations.

Greater Efficiency for the Eastern Lettuce Industry:

During 1956 and 1957, vacuum cooling of lettuce was used commercially for the first time in Florida, North Carolina, New Jersey, New York, and Massachusetts. In New York, the Extension Service helped the lettuce industry obtain a vacuum cooling service in 1956 after a 3-year study of the possibilities of vacuum cooling conducted by producers with Extension assistance. As a result, about 500,000 packages of New York lettuce were vacuum cooled. The extension agents worked with these producers and shippers during their marketing season, helping them adjust their operations and study quality of their product in the markets. Even though the nation's lettuce crop was about 20 percent higher than the previous year, New York growers moved their crop at satisfactory prices.

In a North Carolina area, producing about 750,000 crates of lettuce per year, Extension found that these growers could reduce costs about 15 cents per crate and increase returns about 30 cents per crate by using vacuum cooling. The new practice increased income to producers in that area alone about \$56,000, with potential for greater benefits as a new market reputation is established.

Training Operators for Quality Cotton Harvesting and Ginning: As a result of Extension's educational leadership, less than 1 percent of the cotton crop for the past 4 years suffered grade loss from gin damages. This was achieved in spite of increases in mechanical harvesting and the installation in many gins of more intensive drying and cleaning processes which tend to shorten the staple and damage the spinning quality of cotton fiber.

Approximately half of the operators of the 20,000 mechanical cotton pickers now in use received specific instruction by extension agents prior to the 1957 picking season.

About one-third of all cotton gin operators received training before getting their gins ready for the 1957 crop. Training every year in both harvesting and ginning

keeps all operators at top efficiency for the benefit of American cotton producers and the entire cotton industry using American cotton.

Meat-Type Hog Program: American farmers face serious decline of income from hogs unless they produce pork to meet consumer preference for leaner meats. For several years, extension educational effort and subject matter in swine has been keyed to producing meat-type hogs.

The increased interest of swine producers as a result of continued educational work is indicated by the following examples from State Extension reports: Iowa reported 128 meat-type hog meetings with 15,260 attending, and 67 live hog probing and carcass demonstrations before 5,950 producers; Alabama reported 415 meetings with 11,100 attending and 33 probing and carcass demonstrations with 2,500 attending.

Ohio, Iowa, Michigan, and Illinois now operate swine evaluation stations. The stations enable swine breeders to submit representative pigs from litters to test feeding efficiency, rate of gain and meatiness of carcass. Data secured have helped producers understand the superior qualities and economic advantages of meat-type hogs, and adjust breeding programs accordingly.

Lack of quality grading and price differentials for meat-type hogs at most markets has been a major factor in the slow acceptance of the program by producers. By means of grading schools, live hog and carcass demonstrations, extension workers are training qualified graders in many States.

Ohio's report gives an example of progress in grading and price. Hogs were graded and paid for on the basis of individual merit at 25 markets in 1956. On these markets 328,100 hogs were graded in 1956 compared to 229,200 during 1955. The percent grading No. 1 increased from 34.3 percent to 38.7 percent during the same period.

All markets in Iowa are paying price differential for live hogs. However, in some cases, this is restricted to those delivered to the plant. At three interior markets producers have an opportunity to sell hogs on a "rail" or yield and grade basis. During 1955 butchered hogs were marketed 5 to 8 pounds lighter weight compared to the previous year, and No. 3 hogs made up a smaller percentage of the total receipts.

At the consumers' end of marketing, Extension provides information, too. For example, during the fall of 1956 when the Tennessee spring pig crop began coming to market in large numbers, the price to producers reached low levels. Yet consumers were not taking full advantage of pork at the lower price. Extension specialists provided consumers in Memphis and surrounding areas with information on pork supply and price. In addition, they provided information on pork selection, home care, food value, freezing, and cooking.

As a result of this effort, one store manager said he moved three times as much pork during a 3-month period as ever before.

Short-Time Method for Making Cheese: Extension workers are helping the cheese industry use research results in developing a more efficient manufacturing process, resulting in a high quality product. A short-time method for making cheese from pasteurized milk was developed by USDA research requiring only 2-1/2 hours instead of 5-1/2 to 6-1/2 hours.

Some of the plants experimenting on commercial use of the short-time process manufacture 5,000 pounds or more of cheese daily. By adopting the process, a plant of this size may reduce manufacturing costs a half cent a pound, which amounts to about \$9,000 a year.

The 1955 production of Cheddar-type cheese in the United States was over 925,000,000 pounds. Processing that amount of cheese by the short-time method would reduce manufacturing costs at least 4-1/2 million dollars.

Since the short-time process was developed, extension activities, such as conferences, cheese-making demonstrations and sampling clinics, have involved personnel representing trade organizations, regulatory organizations, business firms, private research groups, and State research and extension groups from more than 20 States.

Extension assistance with marketing is exemplified by requests to help improve the marketing of a highly perishable strawberry crop. The work has been to improve grading and packing, quality maintenance, market organization, and other factors. It has been particularly important in States, such as Kentucky, Arkansas, Tennessee, Missouri, and Louisiana, where people on small family farms have had difficulty finding suitable sources of income.

New Orleans is an important market for the Louisiana strawberry crop. In 1956 growers drew up a 3-point program with the help of extension workers. They emphasized: (1) better grading of fruit and marking of containers, (2) more systematic distribution, and (3) better-informed wholesalers, retailers, and consumers.

Wholesalers and retailers cooperated in supplying information to an extension worker on the condition of berries they received. He relayed this information to producers so they could quickly correct difficulties.

An intensive educational program, through radio, press, and television, was conducted with consumers to inform them about berry prices, quality and uses. Producers were provided with current daily reports of price, volume by shipping points, and other related facts.

Growers received an average of 50 to 75 cents more per crate for their berries in 1956 than in 1955, even though 40,500 crates were shipped into New Orleans in 1956 compared to 17,250 crates in 1955.

Another development having an impact on the food marketing business is the introduction and growing use of packaged frozen foods. Handlers of frozen foods are not yet familiar with the methods they should use in handling this form of product, particularly time and temperature tolerances that must be observed to preserve quality and insure acceptability to the housewife. Distributors of frozen foods are asking Extension for an educational program to help them in these matters.

Utilization Program: The Department of Agriculture for several years has conducted utilization research at 4 regional laboratories. New and improved uses for agricultural products have been developed, as well as improved methods of processing for established uses. Substantial progress is being made in limited areas in the application of these results by industry.

Examples of utilization work with potatoes and cotton follow:

1. Assistance to Potato Producers through Improved Utilization: The extension of utilization research results in the potato industry is helping halt the decline in potato consumption, thus making potatoes a more profitable farm enterprise. In the last five years consumption of processed potatoes has increased from a very small part to about one-fourth of the total consumption.

The Department of Agriculture and State colleges are conducting considerable research to help solve the many technical problems of the numerous small firms processing potatoes. A Federal Extension fruit and vegetable utilization specialist is assisting potato processors to apply research in solving these problems. He assists State Extension Services to develop work in this field, and provides important liaison by reporting research needs of processors to Department of Agriculture laboratories.

Manufacturers of frozen potato products have sought technical information concerning processing methods, quality maintenance, sanitation, waste disposal and other subjects. The Federal Extension Service utilization specialist has supplied such information to freezers in all parts of the country by correspondence, conferences, and work with plants. Because of the volume of these requests and the lack of published material, a bulletin was prepared on frozen potato products to help answer processors' questions. Much of the information in the bulletin is from processors' experiences and observations made in processing plants. Problems encountered by the industry, reported through Federal Extension Service, are now receiving emphasis in research.

2. Improved Utilization of Cotton: By using newly developed equipment, textile mills can reduce costs and produce higher quality products. A new machine commonly known as the SRRL opener, fluffs up the cotton and enables subsequent cleaning processes to do a more effective job. It was developed by USDA research and its use is being encouraged by an extension specialist in cotton utilization. Between 75 and 100 of these new-type openers are being used by textile mills.

Individual mills report savings of from \$10,000 to \$20,000 annually, attributable to the new machine. Other mills, where detailed figures on savings are not available, report improved blending of cottons, better processing into yarn, and improved quality of yarn and fabrics.

A Federal Extension cotton utilization specialist responsible for this extension work is stationed at Clemson, South Carolina - almost the center of a four-State area containing about 85 percent of the cotton textile industry. His primary responsibility is to extend cotton research results to textile mill management from the ARS regional laboratory at New Orleans.

Increased Grain Facilities Improve Marketing Efficiency:

Farmers in the Southeast are realizing increased income as a result of extension assistance in obtaining additional and improved grain storage and handling facilities. The Southeastern States have increased feed grain, wheat, and soybean production during and since World War II substantially. They also have increased livestock and poultry production and continue to import feed grains from surplus production areas.

Their warm, humid climate makes storage hazardous. Thus, a substantial part of their own production has been shipped out of the Southeast to areas that have commercial facilities to carry grain. Later in the season this, or comparable grain, must be shipped back into the area to meet their local feeding, milling, and processing needs at a handling cost as high as 40 cents per bushel.

Considerable research on that problem has been completed. The Extension Services, particularly in the Carolinas, Georgia, Mississippi, and Louisiana, are conducting programs to help farmers and marketing groups use available research in providing adequate grain storage facilities. This results in substantial savings for producers and users of these grains.

Extension work in home economics promotes individual and family wellbeing through education. This includes competence in providing adequate and satisfying food, clothing, and shelter; exercising knowledge and wise judgment in the use of money, time, and energy; nurturing the young and fostering their healthy growth and development; and cultivation of the human values inherent in living together as a family - the basic unit in a democratic community.

More than 6-1/2 million families received assistance from home economics extension workers in 1956. Some of the major educational needs of homemakers are indicated by the number of persons assisted last year. See Table B.

Farm Housing: Many farm homes are substandard for wholesome family living. As families analyze their resources and needs through the farm and home development process, the increase in demand for help to improve houses has increased over 35 percent since 1953.

To help States meet this demand, Federal Extension Service specialists have provided State specialists with information on credit (especially the Farmers Home Administration), house plans, and building materials. State specialists in turn

aid agents and farm people. In 1956, Extension assisted 1,884,100 of these families. Of these, 49,200 built new homes, 214,300 remodeled homes, and 102,300 installed water and sewage systems.

Agents help families either individually or in groups. In Sedgwick County, Kansas, for example, the home demonstration agent conducted a "Build or Buy" school for husbands and wives. This school and individual assistance to families in this county resulted in the improvements reflected in Table C.

Needs of Farmers Home Administration borrower families have received special attention. Conferences between the Federal Extension Service and Farmers Home Administration personnel in Washington, followed by regional and State conferences, are continually strengthening the educational assistance to these families. Many FHA families have been receiving assistance from extension agents. County FHA supervisors and home demonstration agents are working together to see that help is given to all families.

Consumer requests for clothing information have increased 42 percent. To help State clothing specialists and county agents meet the demand, the Federal Extension Service specialist works closely with research and marketing specialists, the Cotton Council, textile and clothing manufacturers, the National-Institute of Drycleaning, and related business groups. Training conferences are conducted for State specialists and county home demonstration agents to keep them informed of rapid changes in the clothing and textile market.

This service is illustrated by an example from Alameda County, California: A "Clothing Information Day" was held on demand from consumers for unbiased information about family clothing, and 300 homemakers attended. As a result, extension leaflets containing answers to consumers' questions were distributed by merchants and dry cleaners; and local newspapers were induced to carry a regular column on the subject, prepared by the home demonstration agent.

Safety education has become a vital part of extension home economics work. Here are some examples.

In Ingham County, Michigan, the number of rural children killed in accidents sparked a countywide safety program. Eleven hundred women, led by the home demonstration agent, are actively promoting home, farm, and highway safety. One group has been trained to give safety instructions to



TABLE B

PERSONS ASSISTED BY HOME ECONOMICS EXTENSION IN 1956

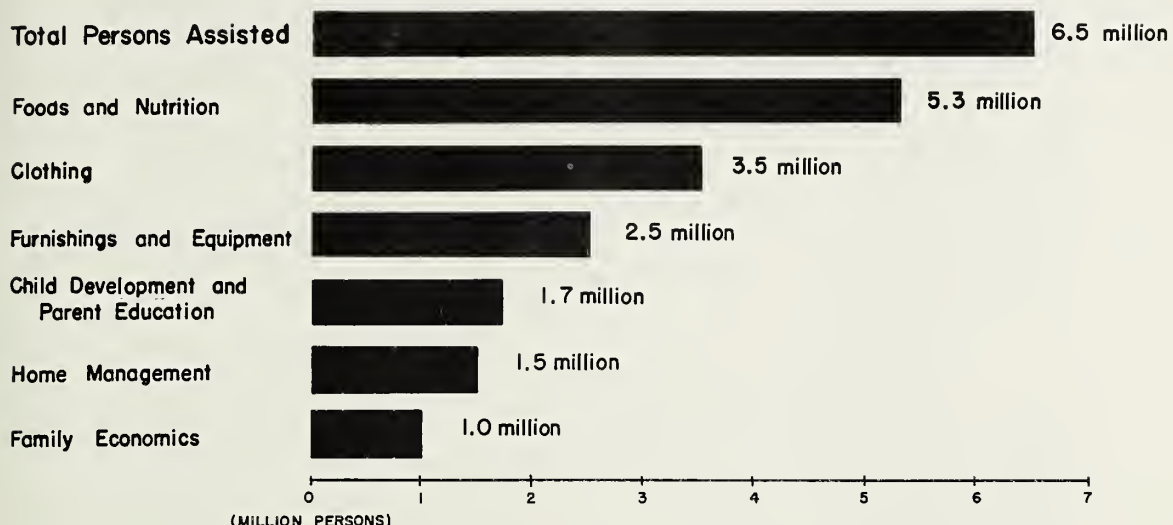
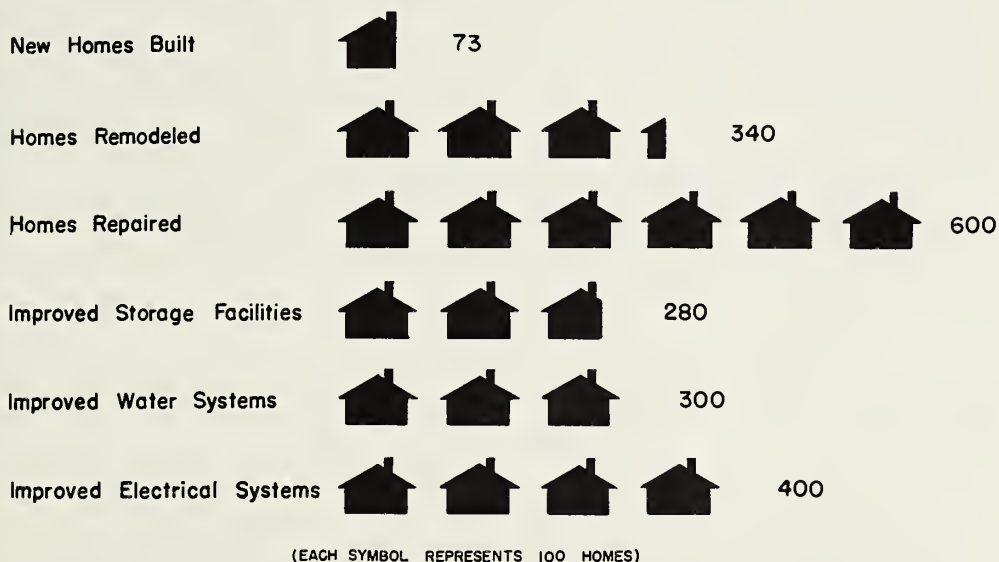


TABLE C

**ACCOMPLISHMENTS OF "BUILD OR BUY" SCHOOL FOR ADULTS,
SEDEWICK COUNTY, KANSAS (1956)**





children in every school. The county superintendent of schools has cooperated by arranging schedules. The sheriff, county nurses, and rural school teachers, are assisting.

In Lincoln County, Oklahoma, the home demonstration agent enlisted the cooperation of county highway troopers in conducting a safety program for both adults and youth. Nine hundred 4-H Club members in this county have studied highway and traffic safety.

Family Financial Planning: Since 1953, there has been a 33 percent increase in demand for assistance to the States to help families develop skill in managing family resources - income, consumer credit, time, energy, etc., - to obtain maximum benefit to family members.

Agents, working with families participating in the farm and home development program, need an increasing amount of help in family economics. Farm, as well as non-farm families, are shifting from production to consumption units, thus increasing the importance of money management and consumer information about goods and services. To meet this need, the Federal Extension Service specialist in family economics and home management conducted workshops last year for State and county extension workers. Topics included: The Management Process, the Use of Family Resources, Consumer Credit, Social Security, Family Legal Matters, Insurance, Family Spending Plans, and Methods of Keeping Farm and Home Records.

As a result, county home demonstration agents assisted over 2-1/2 million persons with family economics and home management problems in 1956.

Helping Families get Established in a Newly Irrigated Area: Curry County, New Mexico, was irrigating 300 acres in 1952. It is anticipated that 47,500 acres will be irrigated in this county in 1957. Population in the town of Othello increased 22 percent during 1956.

Many of these families were new to the county and to irrigated agriculture. These homemakers were accustomed to a weekly pay-check. Their problem was to develop a new home and an irrigated farm from undeveloped land.

As part of the farm and home development program these families asked the best method to bring land under irrigation, best available sources of money, budgeting family time, types of agricultural enterprises to adopt, where to locate farmstead,

and the size of new home the enterprise will support and allow them to build. They discuss their financial situation with agents to arrive at sound decisions. After the first farm and home development families demonstrated the program value to the entire community, requests for this help far exceeded agents' available time.

Participation in 4-H Club programs, increasing moderately, reached a new high of 2,164,300 in 1956. Sixty-two percent of these young people come from farms, 23 percent from rural non-farm homes, and 15 percent from urban homes.

To serve more youth, with limited staff, all Extension personnel - county, State and Federal - have increased their efforts to develop more and better-trained volunteer local leaders. Voluntary leadership for the 4-H Club program has increased four percent since 1955 and 20 percent since 1953. There are 371,355 volunteer leaders now helping guide 4-H Club work.

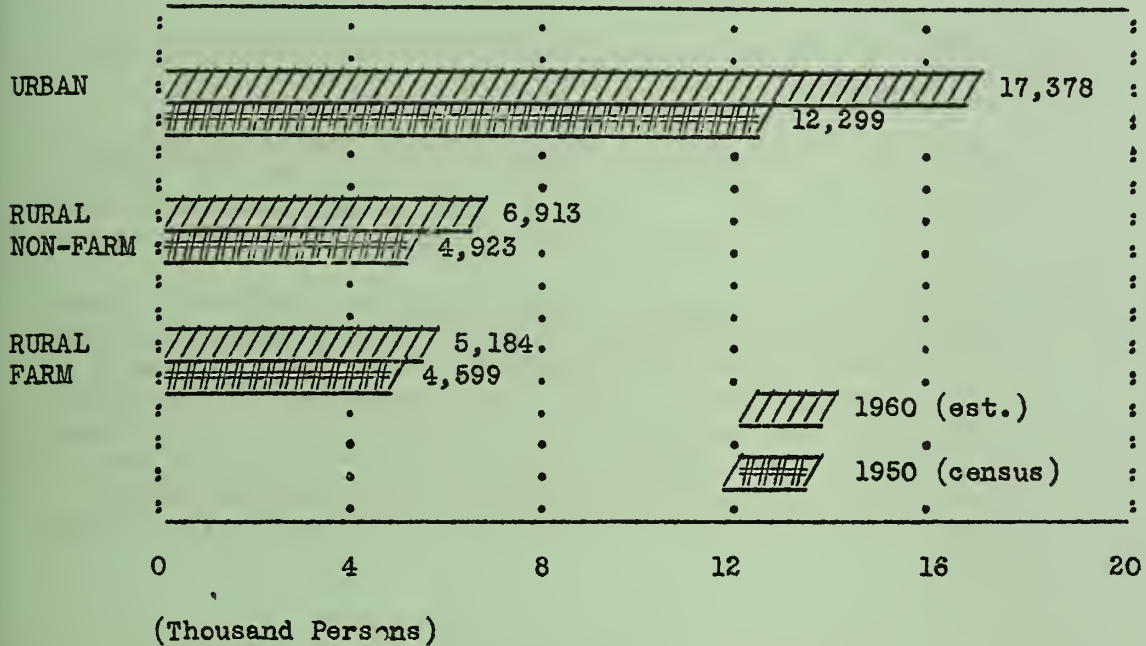
Increasing assistance and encouragement is given to the 4-H Club program by private industry, cooperatives, and others on a national, State and local scale. Two non-profit groups encourage 4-H Club work on a national basis. The National 4-H Club Foundation arranges programs such as the International Farm Youth Exchange, training in human development and human relations. The Foundation has been a prime mover in development of the National 4-H Club Center at Chevy Chase, Maryland. The National Committee on Boys and Girls Club Work, with headquarters in Chicago, Illinois, arranges the National 4-H awards program, conducts the National 4-H Club Congress, a 4-H Supply Service, and publishes a monthly magazine for local leaders. All of these services are in cooperation with the Extension Service, but are financed from private funds.

Donors and private supporters give money, time, and staff assistance in the development of State and county 4-H camps, fairs, leader training programs, project supplies or other educational materials.

Table D highlights the need for an increasingly expanded program for youth.

T A B L E D

Number of Potential Youth 10-19 Years of Age for 4-H Work, 1960 (est.)



As farmers become more efficient, the need for youth to continue on farms is decreasing. It is estimated that 50 to 65 percent of farm youth is leaving the farm, depending on geographic area. These young people are faced with the problem of finding satisfying occupations. They are an important segment of our Extension clientele. Job opportunities in careers related to agriculture, and outside of agriculture, need to be explored, described, and the training and educational requirements explained to them in their early teens. Unfortunately, rural areas often do not have adequate vocational counseling facilities.

The States reported 473 Indian volunteer 4-H leaders now active in 4-H Club work and 12,525 members.

Research and Training: The Federal Extension Service assists the States in extension research and training as a basic and practical means of raising standards of accomplishment and insuring efficient use of the extension dollar. It helps the States study the effectiveness of current programs and teaching methods, and helps devise more effective ways to apply results of research and advancing technology. These include evaluation of progress in disadvantaged areas and analysis of program projection data.

Two other areas of extension research received special attention during the year:

1. A plan for evaluating the total county extension program was initiated to help county extension agents answer the question, "How are we doing in our county?" and State supervisors who ask, "How can we objectively evaluate a total county program?"
2. A study of national publications needs was initiated to develop successful ways of determining needs of farm people for State and U.S. Department of Agriculture popular publications on farming and homemaking. This study should provide information to plan publications needed by each State, by U.S. Department of Agriculture and States within regions, and by U.S. Department of Agriculture for use nationally. Study findings should result in wiser and more economical use of available printing funds.

Interest in professional improvement has reached a high level as extension responsibilities have increased. Extension administrators are fully aware of the need for increased efficiency resulting from better-trained employees. Evidence of this interest is the attendance from States at national and regional training sessions.

Conferences and workshops have been organized to train State leaders of training, extension supervisors, and communications training teams. Some of the training is also directed to those who teach college undergraduate courses for extension majors.

To reach rural people faster and more effectively, county extension agents are taking advantage of revolutionary progress in communication methods. While many complicated farm problems demand more concentrated, personalized help from agents, they cannot meet the total demand for information without fullest use of modern and fast-changing mass and visual facilities and teaching methods.

Extension agents last year worked with local papers on more than 800,000 news stories; participated in 243,000 radio programs; nearly 16,000 television programs; and distributed over 29 million bulletins and leaflets.

The 10 million people they reported assisting was one-fourth more than in 1953. In assisting them the agents used 22 percent more bulletins, 28 percent more radio programs, and 250 percent more television programs than in 1953. They used more exhibits, movies, circular letters, and other modern teaching aids.

More important, most of the State Extension Services joined in a more intensive communication training effort to better equip extension agents to fit these more modern teaching methods into their regular programs along with personal visits, small group meetings, and leader contacts.

Leadership of this effort during the year by the Federal Extension Service was concentrated in three main areas:

1. Cooperating with the States, and a Kellogg Foundation financed project in agricultural communications, in developing and carrying out a localized communication training program for extension workers. It involved training a team of four people from each State in basic communications and assisting these teams in carrying the latest communication principles in localized fashion to the 14,000 cooperative extension workers. Twenty-six such teams were trained last summer and they have already carried the training to more than half the agents in their States. Twelve additional State teams will attend three-week Train-the-Trainer sessions during 1957.
2. Assisting the States in re-evaluating their State and county information plans of work. Special re-evaluation studies are now under way in more than half the States, aimed at more modern, more efficient and effective communication methods.
3. Assisting the States with special workshops to help agents and specialists understand recent changes in radio, television, the press, publications and visual aids, and develop better techniques for educational use of these important educational channels. During the year the Federal Extension Service information staff assisted 39 States in 95 such workshops and special visits.

Administrative Procedures Improved: The science of management is being increasingly recognized by extension directors as an indispensable tool to more effectively manage the total resources under their direction. As a result of interest in administrative management, assistance by the staff of Federal Extension Service is increasingly demanded by State directors. During the year, a detailed review of the organization and management of a State Extension Service was completed by representatives of the Federal Extension Service at the request of, and in cooperation with, the State Extension Service. Specific and alternative measures were recommended which both the State Extension Service and the Federal Extension Service feel will contribute to the development of a more effective program of cooperative extension education.

At the request of another State Extension Service, the Federal Extension Service is helping develop a revised and up-to-date records and filing system for use in county extension offices. Upon completion, the system will be utilized by other States.

Arrangements have been made by the Federal Extension Service at the request of State Extension directors to conduct a regional management workshop each year to train State extension personnel responsible for administrative and fiscal operation.

During the year, the Federal Extension Service continued an intensified fiscal and management examination of State and Territorial Extension Services. At the request of several States, assistance was provided in developing and installing improved management and fiscal procedures or in solving specific management problems.

STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts which, by November 30, 1957, were actually received or programmed for 1958 or 1959. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	: : Obligations, : 1957	: Estimated : Obligations, : 1958	: Estimated : Obligations, : 1959
Allocations and Working Funds (Advances from other agencies):	:	:	:
Commodity Stabilization Service - For technical assistance to Agricultural Stabilization and Conservation Committees in Alaska:	:	:	:
Administrative Expenses, Section 392, Agricultural Adjustment Act of 1938	: \$800	: \$800	: \$800
Local Administration, Section 388, Agricultural Adjustment Act of 1938	: 6,420	: 6,420	: 6,420
Total, Commodity Stabilization Service	: 7,220	: 7,220	: 7,220
International Cooperation Administration - For training and technical assistance activities	: 99,581	: 125,810	: - -
Total, allocations and working funds	: 106,801	: 133,030	: 7,220
Trust Funds:	:	:	:
Miscellaneous Contributed Funds:	:	:	:
For cooperative work with land-grant colleges on in-service training activities through summer-session courses for extension workers	: 2,816	: 2,010	: 2,010
For a cooperative study to evaluate progress and effectiveness of the International Farm Youth Exchange Program	: 652	: - -	: - -
Total, Trust Funds	: 3,468	: 2,010	: 2,010
Obligations Under Reimbursements From Governmental and Other Sources:	:	:	:
Federal Extension Service:	:	:	:
For miscellaneous services to other accounts	: 42,075	: 39,572	: 31,572
TOTAL, OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS	: 152,344	: 174,612	: 40,802

FARMER COOPERATIVE SERVICE

Purpose Statement

The Farmer Cooperative Service was established following the enactment of the Farm Credit Act of 1953 (Public Law 202, August 6, 1953), which transferred the research and technical assistance work for farmers' marketing, purchasing and service cooperatives, under the Cooperative Marketing Act of 1926 from the Farm Credit Administration to the Secretary of Agriculture. The Service conducts research, advisory, and educational work with cooperatives on problems of organization, financing, management policies, merchandising, costs, efficiency, and membership to help farmers who are members of such organizations improve the operations of their businesses. It cooperates with the Extension Service, Land-Grant Colleges, Banks for Cooperatives, State Departments of Agriculture, and other agencies to bring about better understanding and application of sound cooperative principles and practices. The Service also advises other Federal agencies on problems relating to agricultural cooperatives.

The Service carries on its work through three program divisions - Marketing, Purchasing, and Management Services. On November 30, 1957 the Service had 115 employees, 111 of whom were full-time and 4 part-time, all stationed in Washington, D. C.

	<u>Appropriated, 1958</u>	<u>Budget Estimate, 1959</u>
Appropriation	\$578,000	\$578,000



Salaries and Expenses

Appropriation Act, 1958, and base for 1959	\$578,000
Budget Estimate, 1959	<u>578,000</u>

PROJECT STATEMENT

Project	1957	1958 (estimated)	1959 (estimated)
1. Research and technical assistance for farmers' cooperatives	\$510,052:	\$578,000:	\$578,000
Unobligated balance	9,948:	- -	- -
Total available or estimate	520,000:	578,000:	578,000
Transferred to "Salaries and Expenses, Forest Service"	+30,000:	- -	- -
Total appropriation or estimate .	550,000:	578,000:	578,000

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STATUS OF PROGRAM

The Farmer Cooperative Service conducts research, educational and advisory work to assist the 3 million farmers who are members of approximately 10,000 marketing and purchasing cooperatives and related business service associations. The Service acquires, analyzes, publishes and disseminates information relative to farmer cooperatives to further their sound development. This work is carried on in cooperation with general farm and cooperative organizations, land-grant colleges, Federal and State extension services, and State Departments of Agriculture.

Current Activities:

The Farmer Cooperative Service helps farmers strengthen their cooperative organizations through improved structures, management, financing and operating methods. The high costs of farm supplies and reduced prices for farm products are forcing cooperatives to adopt more efficient organization, management and operating techniques. Changes in agricultural production are requiring the establishment of new marketing and purchasing cooperatives and the reorganization and consolidation of existing cooperatives.

Quantity buying of agricultural products by chain stores and other large handlers calls for increased services and better representation of farmers through cooperatives if their marketing needs are to be adequately met. Similarly, to acquire farm production supplies at lowest costs, farmers need more effective processing and distributing cooperative services. Better integrated and stronger cooperatives will give farmers increased bargaining power, greater operating efficiency and other large-scale organizational advantages.

The Service continues to carry on active long-range educational programs designed to strengthen membership participation and democratic control and improve public understanding of sound cooperative principles and practices. The Service provides national and state statistics on trends in growth and character of cooperatives for the benefit of farmers, extension workers and others involved in sound cooperative development.

Farmer Cooperative Service completed work on 82 projects or specific phases of projects during the fiscal year 1957, and it is estimated that about 90 will be completed in 1958 and about the same number in 1959.

Selected Examples of Recent Progress:

1. Dairy cooperatives helped on reorganizational problems. During the past year analytical and advisory service to dairy cooperatives has centered around problems associated with the increasing size and complexity of typical dairy cooperative operations. Cooperatives or groups of cooperatives have been assisted in

working out problems relating to proposed mergers, consolidations or other coordinated programs. In other cases, bargaining associations are finding that past operating methods are too restricted to provide marketing services needed and demanded by producers. Such associations have been assisted and encouraged in the expansion of their services to better meet present day requirements. Other cooperatives have been assisted in appraising future facility requirements necessary to handle the increasing volume of milk through fewer and fewer plants. Managerial organization and accounting controls have not always kept pace with the increased scale of physical operations. Thus, problems relative to modernization and reorganization at the managerial level have been the subject of several case studies. Study and advisory service of this nature have helped dairy cooperatives cope with the industry-wide trend toward larger and more complex operating units.

2. Cooperatives and other handlers of domestic wool assisted on marketing problems. For many years foreign wools have been favored over domestic wools for processing. To help wool producers and their cooperatives, Farmer Cooperative Service interviewed 29 wool buyers to obtain suggestions and opinions that might be used in improving domestic wool production, preparation and marketing methods. This study showed that a substantial number of wool buyers believed that the preparation of domestic wools should and can be improved. They stressed the need for uniform standards in appraising and describing wool. Buyers gave their reasons for using domestic and foreign wools and their views on the feasibility of selling wool through auctions and sealed bid sales. The wool cooperatives and others in the industry, extension and college people, and other agricultural leaders are making wide use of the publication on these findings.
3. Fruit and vegetable cooperatives assisted in adjusting to changing conditions. The concentration of buying in wholesaling and retailing fruits and vegetables has resulted in trade practices that require major adjustments by cooperatives. The Service has helped meet these changed conditions.

For example, three apple processing cooperatives in the Northeast requested assistance in improving their sales methods. A study of this problem indicated the desirability of coordinating their sales methods through a joint selling and merchandising program.

In another instance, a cooperative sales agency serving many producing areas has been experiencing a general decline in total volume. Recommendations have been made to decentralize many of its sales services, to emphasize direct rather than brokerage sales, to modify the overall sales program to meet local marketing problems and to strengthen grower control. A third study of a processing cooperative in the Northwest indicated the need for long-range planning, a new concept of membership relations, and revision of previous operating practices. Major sections of the findings on the study were reproduced by the cooperative for use of the membership in considering improvements in operations.

4. Retirement plans for employees of farmer cooperatives analyzed. Many of the larger farm cooperatives have retirement plans in effect and have found them helpful in holding competent and skilled employees. Others are interested in finding plans suitable for their operations. This study of a selected group of employee retirement plans showed four different types are being used: (1) group annuity; (2) individual annuity contract plan; (3) group permanent; and (4) self-administered trusts. The group annuity can be used by cooperatives of any size and it is particularly well suited to the needs of smaller cooperatives. The self-administered trust, on the other hand, is better suited to the needs of larger cooperatives. The basic features of retirement plans including eligibility requirements, employee contributions, and benefits were compared. This information will be useful to managers and directors of cooperatives that have not yet developed employee retirement plans. This project will result in improved operating efficiency and increased returns to farmer members by assisting cooperatives develop employee retirement plans that will help them obtain and hold trained, experienced and skilled personnel.
5. Methods of controlling credit in local farm supply cooperatives studied. Marked increases in business on credit and in accounts receivable are disturbing many directors and managers of farm supply cooperatives. Area studies of local associations show that the proportion of credit sales increased from 52 percent of sales to 65 percent in the last five years. Days' sales in accounts at fiscal year-end rose from 11 to 14; and proportion of accounts over 30 days increased from 43 percent to 53 percent of total.

Credit costs in 1955-56 were \$1.70 for each \$100 of credit sales. Results of this study indicated that credit control can be improved and costs reduced by: (1) Establishing realistic policies by action of the board of directors; (2) adopting specific programs and practices where credit is extended; (3) establishing sound collection procedures and follow-through; (4) recognizing and equitably allocating the costs of credit; and (5) encouraging and assisting farmers to use existing credit agencies.
6. Costs reduced and efficiency increased for livestock marketing cooperatives. Regional livestock marketing cooperatives in Ohio, Indiana and Michigan operate 35 branch markets and sell more than 6 million head of livestock for farmers. Analysis of their operation points out the weaknesses and strong points of the branch markets and will help all livestock marketing agencies avoid pitfalls, and improve the layout and operation of these markets. This work points the way to a great saving in labor through pooling of livestock and selling by grade. 75 to 80 percent of the labor can be saved by these practices.
7. Cooperative Rice Marketing Encouraged. Cooperatives are now handling more rice for producers than ever before and they have joined with others in the industry in seeking ways to increase consumption of rice through joint promotion activities. The improved marketing

methods used by these associations are of major importance to growers, handlers and consumers. The Farmer Cooperative Service has just completed a study designed to increase the efficiency of these cooperatives in serving producers and the results are now available for educational uses by the associations and educational agencies.

8. Plant location studies reduce transportation costs. The Service has assisted a number of farmer cooperatives in locating facilities to serve farmers economically and reduce transportation costs. These studies involve analysis of comparative freight rates for the commodity, transit arrangements, and methods of shipment. For example, assistance was given to 17 cooperative wholesales in locating a fertilizer plant to efficiently serve farmers in the Midwest. By acquiring these facilities at the site selected, farmers will save in excess of \$100,000 annually in transportation costs. The Service is assisting in the relocation of an 8-million pound wool warehouse in the North Central area due to a shift of related manufacturing enterprises from New England. Relocation of these facilities will save farmers \$50,000 annually in transportation costs.
9. Management training for farmer cooperatives strengthened. Emphasis is being placed on the improvement of management for farmer cooperatives in the research and educational work of the Service. In cooperation with national cooperative organizations, management training programs were developed for managers of livestock and wool marketing associations. This work covered executive and employee training, effective communication, methods of increasing volume, management controls, and better coordination of management staff. A similar program for management of farmers mutual fire insurance companies in the Midwest was developed in cooperation with a land-grant college. This covered fundamentals of insurance, use of reinsurance, new insurance coverages, and loss prevention programs as well as principles of management and membership relations. Through participation in various state and regional conferences and short courses, the Farmer Cooperative Service has assisted in training cooperative managers in the fundamentals of good management and the importance of maintaining an efficient and up-to-date management team.
10. Methods of financing farmer cooperatives studied. The cooperative financing study has developed significant information on sources and types of equity capital, use of borrowed capital, distribution of savings, and the revolving fund method of financing. In 1954 farmer marketing and purchasing cooperatives in this country realized gross margins and savings of \$332 million in their operations. Almost 31 percent of these savings was distributed to farmers in cash as patronage refunds. Another 5.7 percent was paid in cash as interest or dividends on equity capital. About 56 percent of 1954 margins and savings was retained by the cooperatives as capital credits allocated to their members. Unallocated reserves took 3.6 percent of the total and State and Federal income taxes 4.2 percent.

Farmer cooperatives are increasing their use of the revolving fund method of financing. The study shows that 62 percent of the cooperatives analyzed has at least one form of equity capital on a revolving fund basis. From 1949 to 1954 there was an increase of 63 percent in the amount of revolving fund capital. Total capital invested by farmer members in their cooperatives is estimated at \$1.8 billion for 1954. A total of \$1.2 billion of this capital is estimated to be on a revolving fund basis.

This study provides basic data that will assist cooperatives to strengthen their financial structures and to develop sound financing programs suited to their needs.

11. National statistics on farmer cooperatives improved. Continued progress has been made by Farmer Cooperative Service in improving statistical methods and developing better records to provide more accurate and complete information on farmer marketing, farm supply and related service cooperatives. Self-help groups are currently receiving much attention as an important means of assisting farmers in many of their economic problems. This has led to widespread and renewed interest in their activities and brought an increasing demand for information regarding their membership and business operations. Statistics developed in the annual survey by the Service have served an increasingly useful purpose in answering this need for statistical information. The completeness of these nationwide statistics is largely the result of the interest and participation of cooperatives in the annual survey. More than 92 percent of the 9,887 cooperatives included in the most recent survey supplied information on their business operations.

STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts which, by November 30, 1957, were actually received or programmed for 1958 or 1959. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	: Obligations, 1957	: Estimated Obligations, 1958	: Estimated Obligations, 1959
<u>Allocations and Working Funds (Advances from other agencies):</u>			
<u>International Cooperation</u>			
<u>Administration:</u>			
For expenses in connection with training and technical assistance activities	\$7,550	\$8,015	- -
<u>Department of Agriculture, Agricultural Marketing Service:</u>			
<u>Marketing Research and Agricultural Estimates:</u>			
For marketing research activities	229,293	377,700	\$376,500
Total, Allocations and Working Funds	336,843	385,715	376,500
<u>Obligations Under Reimbursements From Governmental and Other Sources:</u>			
Salaries and Expenses	1,533	- -	- -
TOTAL OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS	338,376	385,715	376,500

SOIL CONSERVATION SERVICE

Purpose Statement

The Soil Conservation Service was established by the Act of April 27, 1935 (16 U.S.C. 590a-590f). It assists soil conservation districts and other cooperators in bringing about physical adjustments in land use that will conserve soil and water resources, provide for agricultural production on a sustained basis, and reduce damage by floods and sedimentation. The Service also develops and carries out special drainage, irrigation, flood prevention, and watershed protection activities in cooperation with soil conservation districts, watershed groups, and other Federal and State agencies having related responsibilities.

Conservation Operations Program Activities:

The Service provides technical and other assistance to soil conservation districts and other cooperators in the 48 States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands, in helping farmers and ranchers carry out locally-adapted soil and water conservation programs. As of June 30, 1957, farmers and ranchers had organized 2,770 conservation districts. The assistance furnished by the Service includes:

- (a) Soil Surveys to provide physical land facts needed to determine the use capabilities and conservation treatment needs of each acre of farm and ranch land, and the publishing of soil survey reports and maps which are useful also to other Federal and State agencies and the public in the development of special land use programs and for other purposes;
- (b) Technical help to farmers and ranchers in developing and applying conservation plans which provide for the best possible use by the farmer or rancher of his land, labor, equipment and financial resources;
- (c) The grant (at no cost to the Service) of some special types of equipment not readily available to the farmer but needed to establish certain conservation practices;
- (d) Field-scale trials of promising new species and strains of grasses, legumes, trees and shrubs and other plant materials to determine their suitability for soil and water conservation purposes, and cooperation with State and private organizations to promote adequate commercial production and distribution of plant materials useful for conservation land use and treatment measures. Limited amounts of plant materials needed for this purpose are produced at seventeen plant materials centers;
- (e) Stream-flow forecasts developed from snow surveys in the Western States to provide for efficient seasonal utilization of available water supplies for irrigation and other purposes.

Watershed Protection Program Activities:

The Service has general responsibility for administration of the Watershed Protection program of the Department, and the formulation and development of its guiding principles and procedures. The program consists of:

- (a) Making investigations and surveys of proposed small watershed projects and working with local sponsoring organizations in the preparation of project work plans;
- (b) Cooperating with States and other local public agencies in the installation of works of improvement designed to reduce erosion, floodwater, and sediment damage, and further the conservation, development, utilization, and disposal of water;
- (c) Making loans (by the Farmers' Home Administration) to local organizations to finance the local share of the costs of carrying out works of improvement; and
- (d) Cooperating with other Federal, State, and local public agencies in making investigations and surveys of the watersheds of rivers and other waterways for the development of coordinated water resources programs.

In cooperation with soil conservation districts and other local groups and organizations, the Soil Conservation Service provides accelerated technical assistance to farmers and ranchers in these small watersheds in the planning and application of soil and water conservation practices and technical and financial assistance in the planning and installation of water management and erosion control measures such as diversion ditches and dikes, waterflow retarding structures, debris and desilting basins, stream-channel improvements, floodways, gully control structures, roadside stabilization measures, etc. The Forest Service participates, generally by cooperating with State foresters, in planning and providing intensified fire protection and certain technical forestry assistance to landowners in applying forest and woodland improvement measures on non-Federal lands and by installing measures on lands under its administration. The Agricultural Research Service furnishes assistance in the assembly, correlation, and analysis of economic data needed in the planning phases of the program. The Farmers' Home Administration makes loans to local sponsors to finance their share of costs of the small watershed projects. The Weather Bureau and Geological Survey provide assistance in gathering and analyzing hydrologic data. The Bureau of Land Management and the Bureau of Indian Affairs participate in the planning and installation of works of improvement on lands under their jurisdiction.

The Agricultural Research Service, Forest Service and the Soil Conservation Service cooperate with other Federal, State and local public agencies in making surveys and investigations of the watersheds of rivers and other waterways for the development of coordinated water resources programs.

Flood Prevention Program Activities:

Pursuant to the Flood Control Act of June 22, 1936, as amended and supplemented, and under policies established by the Secretary, the Service has general responsibility for administration of the Flood Prevention program of the Department, and the formulation and development of its guiding principles and procedures. Since the passage of the Watershed Protection and Flood Prevention Act (P. L. 566, 83rd Congress) the program is limited to the planning and installation in the 11 authorized watersheds of watershed improvement measures primarily for flood prevention.

The Soil Conservation Service plans and installs work of improvement such as floodwater retarding structures, stream-channel improvements, gully stabilizing and sediment control measures, diversions, floodways, etc., in cooperation with soil conservation and flood control districts and other State and local agencies. The Service also provides technical assistance to landowners to accelerate the installation of land treatment measures which contribute to flood prevention.

The Forest Service participates, generally by cooperating with State foresters, in planning and providing intensified fire protection and certain technical forestry assistance to landowners in applying forest and woodland improvement measures on non-Federal lands and by installing measures on lands under its administration.

Water Conservation and Utilization Program Activities:

Under the authority of the Acts of August 11, 1939 and October 14, 1940 (16 U.S.C. 590-y-z-10), as amended and supplemented, June 28, 1949 (63 Stat. 277) and September 6, 1950 (7 U.S.C. 1033-39) the Service carries on a water conservation and utilization program in the Eden Valley project in Wyoming. This work has been completed on all other projects planned for development. Irrigated and irrigable lands (both Government and privately-owned) are developed for efficient use of irrigation water. Settlement opportunities are provided for veterans and needy farm families through the sale of newly-developed farm units. Technical assistance is furnished to settlers within the authorized project area to aid them with their soil and water conservation and land use problems.

Great Plains Conservation Program Activities:

The Great Plains Conservation Program, authorized by Public Law 1021, 84th Congress, provides (a) long-term cost-sharing with farmers and ranchers in designated counties of the ten Great Plains States to aid them to achieve a more stable agricultural production, protect their lands from erosion, and develop farming and ranching practices to cope more adequately with the climatic hazards which characterize the area, and (b) technical and other assistance in planning, scheduling, and installing the essential soil and water conservation measures, farming systems, and land-use adjustments upon which the contracted cost-sharing arrangements are based. Other agricultural programs of the Department in the Great Plains have also been directed toward helping farmers and ranchers make the adjustments needed to protect their soil and water resources and achieve a more stable agriculture.

A Great Plains Inter-Agency Group, consisting of representatives of the Soil Conservation Service, Agricultural Conservation Program Service, Agricultural Marketing Service, Agricultural Research Service, Commodity Stabilization Service, Farmers' Home Administration, Federal Crop Insurance Corporation, Federal Extension Service, Forest Service and Office of Information, have been designated on a continuing basis by the Secretary of Agriculture to assure effective coordination of all Departmental resources in the program. The Soil Conservation Service has been assigned general responsibility for the Great Plains Conservation Program and the representative of that Service is chairman of the Inter-Agency Group. Full cooperation of State and local governmental agencies and of other groups, organizations, and individuals having an interest in or affected by the program will be encouraged.

Program Administration:

The Soil Conservation Service maintains its central office in the District of Columbia but most of its activities are highly decentralized to forty-seven State and three territorial offices, six cartographic units, six engineering and watershed planning units, and about 3,400 area and work unit headquarters which carry on the technical programs of the Service in conservation districts, watersheds, and water conservation and utilization projects. In addition, the Service has about 50 specialists in the fields of agronomy, soils, biology, forestry, information, plant materials, and range conservation who are attached to the Washington office but located at various points in the field, to provide for necessary program coordination and the technical assistance in those specialty fields requested by field operating personnel.

As of November 30, 1957, the Soil Conservation Service had 13,485 full-time employees (263 in Washington and the balance in the field) and 2,751 part-time employees. The latter are generally employed in the field during the seasonal periods when there is need for additional assistance in applying conservation practices.

<u>Appropriations</u>	<u>Appropriated, 1958</u>	<u>Budget Estimates, 1959</u>
Conservation operations	\$72,545,000	\$72,280,000
Watershed protection	<u>a/ 25,500,000</u>	14,000,000
Flood prevention	<u>a/ 13,220,000</u>	13,220,000
Water conservation and utilization projects	<u>a/ 350,000</u>	335,000
Great Plains conservation program	<u>10,000,000</u>	<u>10,000,000</u>
Total	<u>121,615,000</u>	<u>109,835,000</u>

a/ In addition, prior year balances available.

Summary of Appropriations, 1958 and Estimates, 1959

Appropriation Item	Appropriated, 1958	Budget Estimates, 1959	Increases or Decreases (+ or -)
Conservation operations ...	\$72,545,000	\$72,280,000	-\$265,000
Watershed protection	<u>a/</u> 25,500,000	<u>d/</u> 14,000,000	-11,500,000
Flood prevention	<u>b/</u> 13,220,000	13,220,000	- -
Water conservation and utilization projects	<u>c/</u> 350,000	335,000	-15,000
Great Plains conservation program	10,000,000	10,000,000	- -
Total	121,615,000	109,835,000	-11,780,000

a/ In addition, \$7,149,782 is available from prior year balances.

b/ In addition, \$1,582,697 is available from prior year balances.

c/ In addition, \$15,805 is available from prior year balances.

d/ In addition, \$10,839,000 is estimated to be available from prior year balances.

(a) Conservation Operations

Appropriation Act, 1958	\$72,545,000
Less savings in 1958 reflected as reductions in 1959 estimates	-184,000
Base for 1959	72,361,000
Budget Estimate, 1959	72,280,000
Decrease (due to providing a direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation)	-81,000

PROJECT STATEMENT

Project	1957	1958 (estimated)	Decrease	1959 (estimated)
1. Assistance to soil conservation districts: and other cooperators:				
(a) Planning, applica- tion and maintenance: of practices	\$65,786,997	\$71,809,400	-\$81,000 (1)	\$71,728,400
(b) Observational field testing of conservation plant materials	460,880	551,600	- -	551,600
Total obligations or estimate	66,247,877	72,361,000	-81,000	72,280,000
Unobligated balance	927,123			
Transferred to "Salaries: and expenses, Forest Service"	+325,000			
Total appropriation	67,500,000			

DECREASE

(1) A decrease of \$81,000 due to providing a direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation. Certain space assignment and leasing functions of the various Federal agencies were transferred to the General Services Administration under Section 1 of Reorganization Plan number 18 of 1950. These functions are applicable only to general purpose space that may be occupied in any of the designated metropolitan areas and include the acquiring and payment for space in buildings, the assignment and reassignment of such space and the operation, maintenance and custody thereof. The decrease of \$81,000 represents the cost of leasing functions which will be assumed by General Services Administration in the 1959 fiscal year.



STATUS OF PROGRAM

Current Activities:

The planning and establishment of soil and water conservation measures on farm and ranch lands provided for under this item, is carried on primarily in cooperation with soil conservation districts. These districts are local units of government, organized under State laws, and responsible to the landowners and operators in the districts and to the State legislatures. They are founded upon the sound principle of local initiative, direction, and control and are formed only in response to the petition and favorable referendum vote of the landowners and operators within the district boundaries. By the end of the 1957 fiscal year 2,770 soil conservation districts had been organized in all 48 States, Hawaii, Alaska, Puerto Rico, and the Virgin Islands.

Establishment of sound land use and the right combinations of soil, water and plant conservation measures on agricultural lands requires a combination of practical and scientific agricultural and engineering knowledge and skills. Soil Conservationists, engineers and other technicians of the Soil Conservation Service work with farmers and ranchers in developing conservation plans which provide for the application of proper combinations of conservation practices for their individual farm or ranch enterprises. The best available professional and scientific knowledge and judgment can be focused on special, new or complex conservation problems by these specialists headquartered in the field or on the Washington office staff. Adherence to sound scientific principles and coordination of various agricultural techniques is required at all levels of the Service to maintain high standards of quality in all aspects of the Service work. Soil conservation districts and cooperating landowners are thus assured of practical and skilled technical assistance with their land use and land treatment problems.

The following types of assistance are being furnished to landowners and operators to carry out locally-adapted programs of soil and water conservation:

1. The services of soil scientists who make soil surveys and conduct special soils investigations essential to successful conservation planning and sound recommendations for the use and treatment of each acre of agricultural land. These surveys include the soil series and type, its depth, slope, degree and extent of erosion, and other significant characteristics which are recorded on base maps in the field acre by acre. The soil surveys are conducted cooperatively with the land grant colleges and other State agencies. The survey reports and related soil maps after publication find continually expanding uses in other Federal, State, county, and local programs involving land use. Appropriate detailed soils

investigations are also made to guide structural design or conservation practice specifications in special or unusual cases.

2. The services of professional soil conservationists, engineers and other conservation specialists and aide who help farmers and ranchers plan and apply individual conservation programs for their farms or ranches. These jointly developed programs for the orderly adjustment of the use and treatment of each acre of their land are consistent with the land facts disclosed by the soil survey, and the labor, equipment and financial resources of the landowners and operators.
3. The grant to soil conservation districts of special equipment which is acquired from surplus at no cost to the Soil Conservation Service. This equipment is assigned to assist farmers or ranchers in establishing conservation practices on their lands, where the application of needed conservation practices has been delayed because appropriate equipment was not readily available or was beyond the ability of farmers and ranchers to purchase individually or in small groups.
4. Technical assistance to group enterprises on soil conservation or water control problems that can only be solved by group action of the cooperating landowners and operators. These problems may involve irrigation or drainage of valuable agricultural land, or stabilization of critical erosion and runoff areas to protect agricultural, industrial, or urban, properties from flooding and sediment damage. Where engineers and other specialists needed are not available from other local sources, Service technicians provide consultation and technical assistance for the investigation, design, and installation of the measures needed.
5. Streamflow forecasts developed from snow surveys in the Western States which serve as a basis for planning for efficient seasonal utilization of available water for irrigation and other purposes.
6. Field-scale trials of promising conservation plant materials to determine their suitability for erosion control purposes, and cooperation with commercial concerns to promote adequate production, propagation and utilization of new and uncommon strains of vegetative planting materials for conservation uses.

7. Technical assistance in Agricultural Conservation Program participants in the planning, lay-out, and establishment of specified conservation practices, both within and outside conservation districts. Nearly three-fourths of the cost of this work is paid from funds advanced by the respective county Agricultural Stabilization and Conservation Committees.

In addition, in cooperation with other Federal, State and local agencies or groups, some special technical assistance on conservation and land use problems is also given to farmers and ranchers, both inside and outside of conservation districts. (Only about 7 percent of the farms and ranches of the nation are outside of conservation districts.) For example participants in the Department's Acreage Reserve Program are assisted on their request in selecting which land should be entered in the reserve and the appropriate eligible treatment for it. Borrowers under the Soil and Water Conservation Loan Program of the Farmers Home Administration are usually provided with investigative, design, specification, and installation services for the structures or measures for which the loan is made. Limited amounts of assistance are also provided on occasion to other cooperating groups or individuals in order to develop a better local understanding of erosion, water, and land use problems and to encourage more widespread adoption of conservation farming methods.

Examples of Recent Progress:

Organization of New Soil Conservation Districts

During the fiscal year 1957, a total of 62 new conservation districts comprising 38,737,256 acres were formed. A total of 172 additions comprising 14,401,418 acres were made to 93 existing districts during the year. About 40 percent of this additional acreage was included in the existing districts in California, Idaho, and Oregon. Thirteen districts were dissolved, nine of which became parts of new districts, the territory of two districts was added to existing districts, and one wind erosion district was changed to a soil conservation district. This made a net increase of 49 districts during fiscal year 1957 and a net of 36,133,845 acres added to districts. As of June 30, 1957, farmers and ranchers in the 48 States and territorial possessions had organized a total of 2,770 conservation districts comprising a total area of 1,596,991,319 acres.

The 4,517,715 farms and ranches in conservation districts as of July 1, 1957 comprised 93 percent of the total farmers and ranchers in the nation as shown by the 1954 Census of Agriculture. Eighteen States and two territorial possessions were completely covered by districts.

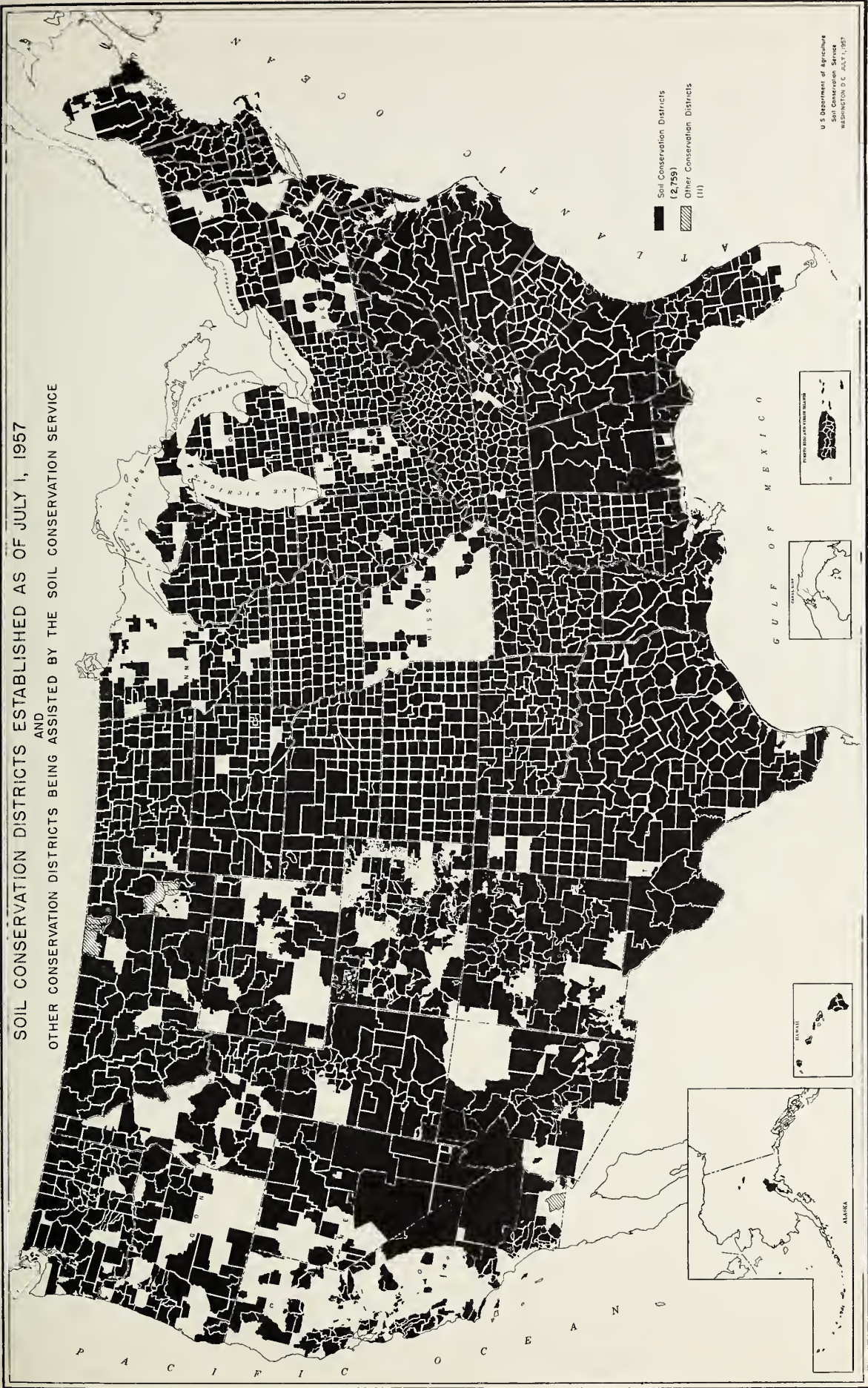
It is anticipated that 60 new districts will be organized in the fiscal year 1958 and another 30 in 1959 which will bring the total to 2,860 districts as of June 30, 1959.

Conservation Districts Organized as of July 1, 1957

Kind of District	Location	Number of Districts	Approximate Area (Acres)	Number of Farms
Soil Conservation Districts	48 States	2,707	1,579,004,802	4,436,132
Soil Conservation Districts	Caribbean Area	19	2,269,711	54,270
Soil Conservation Districts	Hawaii	16	3,369,748	4,968
Sub-districts	Alaska	9	4,391,000	924
Work Area (called districts)	Connecticut	8	3,135,360	15,615
Grass Conservation Districts	Montana	10	3,935,708	968
Imperial Irrigation Districts	California	1	884,990	4,838
Total Conservation Districts		2,770	1,596,991,319	4,517,715

The attached map shows the Conservation districts which had been organized as of July 1, 1957.

SOIL CONSERVATION DISTRICTS ESTABLISHED AS OF JULY 1, 1957
AND
OTHER CONSERVATION DISTRICTS BEING ASSISTED BY THE SOIL CONSERVATION SERVICE





Number of Farms and Acreage in Conservation Districts

Date	: Number of Districts Organized	: Total Acres in Organized Districts	: Approximate Acres In Farms	: Number of Farms in Districts
<u>Actual</u>	:	:	:	:
June 30, 1956	: 2,721	: 1,546,456,056	: 1,005,456,965	: 4,951,952
Average per district	:	: 568,341	: 369,517	: 1,820
June 30, 1957 ..	: 2,770	: 1,596,991,319	: 1,020,076,913	: 4,517,715
Average per district	:	: 576,531	: 368,259	: 1,631
<u>Estimated</u>	:	:	:	:
June 30, 1958 ..	: 2,830	: 1,647,000,000	: 1,035,000,000	: 4,578,000
Average per district	:	: 586,121	: 368,327	: 1,629
June 30, 1959 ..	: 2,860	: 1,685,000,000	: 1,047,000,000	: 4,623,000
Average per district	:	: 593,310	: 368,662	: 1,628

Survey Accomplishments

The following tables show the major survey accomplishments of the Service in assisting soil conservation districts and other cooperators. The two major types of surveys conducted by the Service are defined as follows:

- (1) Soil surveys are those where soil types, slope gradients, and erosion conditions and their boundaries are determined in detail by actual field examination and where classification is in accordance with the standard nation-wide system of soil classification, to furnish information for conservation planning, land inventories publication, and other purposes.
- (2) Range surveys are those made of different range sites and range conditions. A range site is an area or areas of similar soil and climatic conditions capable of producing essentially the same kind and amount of climax vegetation. The range condition is determined by the kind and amount of vegetation present on the range site and is classified as excellent, good, fair or poor. Both range site and range condition are delineated on a map after actual examination in the field (usually with the rancher). The maps are used for conservation and watershed planning on range lands.

Some reconnaissance surveys not tabulated below, are made on a broader basis for problem area delineations and broad program planning.

SURVEYS:

		1957	Total as of	1958 FY	1959 FY
Type of Survey	Unit	Actual	6/30/57	Estimate	Estimate
Soil	Acres	34,797,374	539,531,773	36,750,000	38,587,000
Range	Acres	12,551,161	67,990,253	13,500,000	14,000,000

The rate of soil surveys in the nation was increased 10.2% in the fiscal year 1957 over the fiscal year 1956.

Soil Surveys Accelerated in the Great Plains

Beginning in July 1954 special emphasis was given to speeding up soil surveys in 147 of the 166 counties in the critical wind erosion area of seven of the great plains States. Because of the urgent need for soil survey data for farm and ranch conservation planning purposes in this critical area, this work has been accelerated each year since 1954. During the initial six-month period soil survey accomplishments were increased about 78% in this area. The rate of soil survey accomplishments was again increased 97.7% in the 166 critical wind erosion counties during calendar year 1956 over the 1955 accomplishments.

The following table shows soil survey progress in calendar year 1956 compared with calendar year 1955 in the 166 wind erosion counties in the Southern Great Plains:

<u>State</u>	<u>Counties Number</u>	<u>Soil Surveys</u>	
		<u>Mapped in 1955</u> Acres	<u>Mapped in 1956</u> Acres
Colorado	25	289,416	421,101
Kansas	44	738,102	1,569,528
Nebraska	14	236,692	593,700
New Mexico	12	436,488	481,013
Oklahoma	11	723,256	2,017,293
Texas	57	879,137	1,420,092
Wyoming	<u>3</u>	<u>22,040</u>	<u>70,358</u>
Total 166 Counties	166	3,325,131	6,573,085

Soils Investigations and Laboratories

Since mid 1953 when all soil survey activities of the Department were consolidated in the Soil Conservation Service, considerable effort has been devoted to developing a scientifically sound system of soil classification that would be acceptable to soil scientists throughout the world and to gathering all of the data for each individual soil that would provide needed information for all present and prospective users of the soil survey.

Soil survey investigations involving both field and laboratory work are being conducted for the purpose of (1) characterization of soils so that they may be placed appropriately in a nation-wide system of soil classification; (2) the characterization of soils with regard to their behavior under various systems of soil management and; (3) improvement in the understanding of soil genesis and how soils act under cultivation.

The Service operates three principal soil laboratories at Beltsville, Maryland, Lincoln, Nebraska, and Riverside, California, to make both physical and chemical soil analyses primarily in support of the soil survey field mapping program. Cooperative arrangements have been made in the States of Colorado, New Mexico, Tennessee, Utah and Virginia with the experiment stations of the land grant colleges for soils laboratory assistance in both the soil surveys and the application of conservation practices. Many other agricultural experiment stations maintain soils laboratories that aid the soil survey work. A soil mechanics laboratory, serving the entire nation is also operated at Lincoln, Nebraska to test soils for structural work.

Some 211 soils were analyzed in the 3 principal laboratories for soil characterization during the year. This required some 30,000 separate analyses of almost 1,600 samples. In addition more than 3,000 other miscellaneous analyses were made on an additional 1,500 samples. Mineralogical determinations including X-ray, differential thermal analyses, and various quantitative petrographic and special chemical determinations were also made on about 400 additional samples.

The investigation of soil composition in relation to parent material source in the Monument Valley of Arizona and in Southern Utah and of the microstructure of some prairie soils of Western Iowa were completed. Studies of the effect of cobalt in the soils of the Southeastern States and of molybdenum in Nevada are continuing. More accurate interpretation of soil survey data in the southern great plains is being developed through a climatological study related to soils data. Studies of tropical soils and some laterite materials in Hawaii and southern California continued. The study of cemented hardpans and fragipans has been enlarged by the collection of a set of samples of desert soils containing alkali soluble hardpans and samples of fragipan soils from glacial till in New England. Field work for a study project on the genesis of brown, swelling, clay soils derived from volcanic rock covering large areas in north central Arizona was completed and the laboratory work was started. Studies on the fundamental properties of clay soils continued. Technical papers are published whenever a significant contribution can be made to the literature on the subjects studied.

Significant progress has been made in forest site-soil relationship studies and data developed are contributing to the quality of conservation program in several States. A study of the relationship of range sites and soils is being initiated.

Soil Survey Reports

During the fiscal year 1957 twenty-nine soil survey reports with accompanying maps were sent to the Government Printing Office for publication. A total of 47 of these reports were awaiting publication at the close of the fiscal year. New soil survey reports and maps were published for the following areas:

Prentiss County, Mississippi	Johnson County, Tennessee
Livingston County, Missouri	Sevier County, Tennessee
Cherry County, Nebraska	Fauquier County, Virginia
Livingston County, New York	Skamania County, Washington
Noble County, Oklahoma	

This brings to 1,676 the number of soil survey reports published since the work began in 1899. Many of the earlier surveys do not provide the detail or useful data for current needs and are scheduled to be revised and re-published. An increased rate of soil survey report, preparation, editing, and publication is scheduled for 1958 and 1959.

Number of Cooperators and Conservation Plans

Explanation	Active		Net Increase in
	District Cooperators		SCD Cooperators
	Number	Acres	and basic plans
	<u>As of June 30, 1956</u>		<u>Fiscal Year 1956</u>
No. soil conservation district cooperators ..	1,644,066	487,334,750	91,730
SCD cooperators having basic plans	1,102,804	306,991,999	68,274
No. basic plans fully applied	177,927	37,173,045	13,254
	<u>As of June 30, 1957</u>		<u>Fiscal Year 1957</u>
No. soil conservation district cooperators ..	1,727,682	515,302,750	83,616
SCD Cooperators having basic plans	1,161,745	326,053,673	58,941
No. basic plans fully applied	190,562	39,603,486	12,635
	<u>As of June 30, 1958(Est.)</u>		<u>Fiscal Year 1958</u>
No. soil conservation district cooperators ..	1,806,000	540,000,000	78,318
SCD cooperators having basic plans	1,222,000	343,000,000	60,255
No. basic plans fully applied	204,600	42,000,000	14,038
	<u>As of June 30, 1959(Est.)</u>		<u>Fiscal Year 1959</u>
No. soil conservation district cooperators ..	1,879,500	562,000,000	73,500
SCD cooperators having basic plans	1,283,000	355,000,000	61,000
No. basic plans fully applied	220,000	46,000,000	15,400

During the fiscal year 1957, a total of 122,492 additional farmers and ranchers became district cooperators, which increased the cumulative number of cooperators to 1,727,682, as of June 30, 1957. Changes in ownership, death and cancellations caused a loss of 38,876 cooperators during the year, resulting in a net increase of 83,616 cumulative cooperators in 1957. Likewise, a total of 92,660 basic conservation plans were developed in 1957. However, losses such as those above resulted in a net increase of only 58,941 basic plans on hand as of June 30, 1957.

Basic Conservation Planning
In Soil Conservation Districts

As of December 31, 1956, the Soil Conservation Service was cooperating under formal agreement with 2,744 conservation districts in the 48 States and in Alaska, Hawaii and the Caribbean Area.

Of the 1,559,667,362 acres total land area in the 2,725 districts to which technical assistance was provided as of December 31, 1956, about 1,127,000,000 acres were agricultural land on which the Service, in cooperation with districts was authorized to work. This acreage consisted of about 4,686,000 operating farms and ranches which is approximately 87 percent of the total land in farms and 91 percent of the farms and ranches in the United States.

Basic conservation plans had been prepared with SCS assistance on nearly 1,139,000 farms and ranches comprising about 318,000,000 acres of agricultural land as of December 31, 1956. This was about 24 percent of all the operating units in districts and about 28 percent of the agricultural land in districts. Variations in these percentages by States and broad geographical areas are shown in the table on the following page.

The Service's long-term objective recognizes that nationally basic conservation plans need a major revision within a ten-year period to keep them up to date. The annual workload on these revisions would be about 10 percent of the plans on hand for any given year. However, during calendar years 1955 and 1956, the reported revisions each year were less than 1 percent of the plans then on hand.

Basic Conservation Planning in Soil Conservation Districts
By States and Nationally, December 31, 1956

States	Total SCD's as of 12/31/56	Agricultural Land in SCD's	Operating Units in SCD's	Basic Conservation Plans Prepared as of 12/31/56		% of Operating Units Planned	% of Agric. Land Planned
	Number	Acres	Number	Number	Acres	%	%
Northeast							
Connecticut	8	2,554,700	36,690	2,418	265,326	6.6	10.4
Delaware	3	987,198	7,427	1,273	206,993	17.1	21.0
Maine	15	3,448,894	19,400	5,200	1,051,442	26.8	30.5
Maryland	23	4,695,752	32,024	10,273	1,467,731	32.1	31.3
Massachusetts	15	1,898,918	22,882	5,047	540,083	22.1	28.4
New Hampshire	10	5,563,345	31,391	3,480	585,417	11.1	10.5
New Jersey	12	2,489,431	25,039	4,771	526,531	19.1	21.2
New York	45	13,840,215	107,733	21,511	2,811,028	20.0	20.3
Pennsylvania	43	8,527,184	82,746	15,091	1,720,870	18.2	20.2
Rhode Island	3	485,000	3,392	854	102,644	25.2	21.2
Vermont	13	3,527,381	19,093	5,337	1,037,852	27.9	29.4
Virginia	29	21,084,929	138,468	30,061	5,040,402	21.7	23.9
West Virginia	14	9,826,715	73,011	24,384	3,195,822	33.4	32.5
Total	233	78,929,662	599,296	129,700	18,552,141	21.6	23.5
Southeast							
Alabama	12	20,038,768	140,400	46,768	7,880,373	33.3	39.3
Arkansas	74	29,407,979	149,728	46,284	9,421,566	30.9	32.0
Florida	58	24,713,694	49,342	17,960	6,080,918	36.4	24.6
Georgia	27	29,375,595	168,344	75,471	14,234,786	44.8	48.5
Louisiana	26	26,176,928	113,519	24,568	5,239,824	21.6	20.0
Mississippi	74	20,772,712	157,809	54,889	9,829,278	34.8	47.3
North Carolina	37	20,472,964	288,508	64,039	6,617,607	22.2	32.3
South Carolina	44	17,774,707	118,014	32,348	5,411,014	27.4	30.4
Tennessee	88	18,021,975	182,546	25,592	3,524,908	14.0	19.6
Caribbean	19	2,131,596	53,000	11,087	674,954	20.9	31.7
Total	459	208,886,918	1,421,210	399,006	68,915,228	28.1	33.0
Cornbelt							
Illinois	97	30,045,865	218,588	31,884	5,425,833	14.6	18.1
Indiana	70	14,130,965	112,369	15,726	2,334,702	14.0	16.5
Iowa	100	34,264,229	192,059	39,552	7,120,324	20.6	20.8
Kentucky	121	20,532,870	200,845	42,092	5,017,203	21.0	24.4
Michigan	75	19,041,878	175,056	17,454	2,186,099	10.0	11.5
Minnesota	72	23,436,184	124,143	16,505	3,043,397	13.3	13.0
Missouri	32	9,206,722	61,738	7,811	1,488,508	12.7	16.2
Ohio	87	20,660,132	168,025	29,684	4,138,800	17.7	20.0
Wisconsin	71	22,781,395	163,067	20,856	3,307,250	12.8	14.5
Total	725	194,100,240	1,415,890	221,564	34,062,116	15.6	17.5
Great Plains							
Colorado	99	26,918,628	37,924	11,570	10,345,192	30.5	38.4
Kansas	105	50,557,975	131,879	55,421	16,876,957	42.0	33.4
Montana	69	54,180,994	33,616	8,462	16,756,508	25.2	29.1
Nebraska	87	47,922,976	104,354	38,038	12,760,680	36.5	26.6
New Mexico	61	42,276,739	27,093	9,760	22,333,540	36.0	52.8
North Dakota	79	40,247,249	65,258	21,171	12,812,683	32.4	31.8
Oklahoma	86	38,748,722	143,953	63,627	15,573,397	44.2	40.2
South Dakota	69	42,871,877	61,242	20,914	10,959,646	34.1	25.6
Texas	172	155,189,678	359,632	102,386	55,539,780	28.5	35.8
Wyoming	44	20,657,920	9,905	3,389	4,276,323	24.2	20.7
Total	871	519,572,758	974,856	334,738	178,234,706	34.3	34.3
West							
Arizona	47	20,467,659	9,304	3,430	1,523,216	36.9	7.4
California	130	23,634,963	82,028	19,479	4,064,770	23.7	17.2
Idaho	45	15,934,072	29,525	3,947	1,636,197	13.4	10.3
Nevada	33	8,097,796	3,069	1,281	1,205,133	41.7	14.9
Oregon	53	16,135,003	44,609	4,444	2,130,341	10.0	13.2
Utah	48	13,264,238	25,900	7,145	4,401,171	27.6	33.2
Washington	76	23,608,392	74,218	13,521	3,234,576	18.2	13.7
Alaska	9	1,636,266	1,466	257	41,552	17.5	2.5
Hawaii	15	2,865,356	4,453	321	256,902	7.2	9.0
Total	456	125,643,745	274,572	53,825	18,493,858	19.6	14.7
National Total	2,744	1,127,133,323	4,685,824	1,138,833	318,258,049	24.3	28.2



Progress In Farm and Ranch Planning

The table on the following page shows by States the number of districts which had from 10 percent and less, to more than 50 percent of their agricultural land included in basic conservation plans for farms and ranches. Of the 2,725 districts to which assistance in farm and ranch planning had been provided as of December 31, 1956, more than 50 percent of the agricultural land in 371 districts was covered by basic conservation plans, or 13.6 percent of the total districts. Another 1,219 districts were between 20 and 50 percent planned. The remaining 1,135 districts were less than 20 percent planned. The acreage of agricultural land in each of the districts, on which these percentage calculations were based, include the public and private land on which the Soil Conservation Service is authorized to work through memoranda of understandings and other working arrangements.

Only 133 districts in 26 States had 65 percent or more of the agricultural land planned, which was 4.9 percent of the total districts assisted. These were mainly small districts with a small number of operating units, or those located in relatively level bottom land areas, or a combination of small irrigated acreages with larger grazing areas. Even in the districts with higher percentages of agricultural land planned, many smaller operating units remained to be planned.

In many districts, frequent changes or revisions are made in basic plans already prepared to keep them up to date. Changes in ownership, and land use adjustments for different types of farming, often cause replanning of farms and ranches to meet the needs of operators. The Soil Conservation Service provides technical help to district cooperators in making such change or revisions in basic plans.

Acreage of Basic Plans Related to Agricultural Land
as of December 31, 1956

State	Proportion of Acreage in Basic Plans to Agricultural Land By Individual Districts ^{1/}					Total SCD's Served in 1956 No. SCD's
	10% and Less	10.1 to 20%	20.1 to 35%	35.1 to 50%	More than 50%	
Northeast						
Connecticut	2	6	-	-	-	8
Delaware	-	1	2	-	-	3
Maine	-	4	7	2	2	15
Maryland	-	3	12	5	3	23
Massachusetts	-	3	7	4	1	15
New Hampshire	3	6	1	-	-	10
New Jersey	-	7	1	2	2	12
New York	10	12	16	7	-	45
Pennsylvania	11	6	14	1	5	37
Rhode Island	-	1	2	-	-	3
Vermont	-	4	4	2	3	13
Virginia	7	4	13	4	1	29
West Virginia	-	2	6	5	1	14
Total	33	59	85	32	18	227
Southeast						
Alabama	-	-	3	8	1	12
Arkansas	7	11	24	22	10	74
Florida	9	18	17	8	7	59
Georgia	-	2	4	8	13	27
Louisiana	3	11	10	2	-	26
Mississippi	-	2	22	16	34	74
North Carolina	10	7	4	15	1	37
South Carolina	-	6	23	13	2	44
Tennessee	51	5	11	10	11	88
Caribbean	-	-	16	1	2	19
Total	80	62	134	103	81	460
Cornbelt						
Illinois	12	48	32	4	1	97
Indiana	22	24	14	7	2	69
Iowa	11	36	49	3	1	100
Kentucky	14	31	43	28	5	121
Michigan	29	28	11	5	2	75
Minnesota	32	16	14	5	4	71
Missouri	4	21	7	-	-	32
Ohio	9	36	39	3	-	87
Wisconsin	30	21	13	3	-	67
Total	163	261	222	58	15	719
Great Plains						
Colorado	14	11	24	17	33	99
Kansas	5	14	40	30	16	105
Montana	11	12	15	15	16	69
Nebraska	1	24	34	20	8	89
New Mexico	3	5	7	9	37	61
North Dakota	4	11	25	25	14	79
Oklahoma	1	3	22	37	23	86
South Dakota	17	9	14	18	10	68
Texas	19	20	52	44	37	172
Wyoming	10	6	13	7	8	44
Total	85	115	246	222	202	870
West						
Arizona	16	6	8	8	9	47
California	55	22	21	13	18	129
Idaho	28	6	7	1	-	42
Nevada	13	5	6	2	7	33
Oregon	25	11	7	4	4	51
Utah	5	11	9	12	11	48
Washington	33	20	11	7	4	75
Alaska	8	1	-	-	-	9
Hawaii	10	2	1	-	2	15
Total	193	84	70	47	55	449
Grand Total	554	581	757	462	371	2,725
Percentage	20.3%	21.3%	27.8%	17.0%	13.6%	

^{1/} Includes all public and private land on which the SCS is authorized to work - i. e., the cropland, grassland, woodland, wildlife and other land used for agricultural purposes within the boundaries of soil conservation districts.



Major Practices Applied on Farms and Ranches of
Soil Conservation District Cooperators,
ACP Participants, and Other Landowners Assisted

Type of Practices	Unit	1957 Actual	1958 Estimate	1959 Estimate
Contour farming	Acres	2,660,044	2,600,000	2,500,000
Cover cropping	Acres	4,110,385	4,300,000	4,500,000
Stripcropping	Acres	896,016	900,000	920,000
Stubble mulching	Acres	2,161,368	2,400,000	2,600,000
Proper range use	Acres	27,163,382	28,500,000	30,000,000
Pasture planting	Acres	2,834,046	2,850,000	2,900,000
Range seeding	Acres	597,381	600,000	610,000
Tree planting	Acres	472,435	500,000	520,000
Windbreak planting	Miles	1,965	2,000	2,100
Wildlife area improvement	Acres	426,580	420,000	410,000
Terracing	Miles	50,937	50,000	50,000
Diversion construction	Miles	6,000	6,200	6,300
Pond construction	Number	81,178	82,000	83,000
Waterway development	Acres	81,359	82,000	82,500
Irrigation reservoirs	Number	3,679	3,700	3,750
Sprinkler irrigation systems ..	Number	5,124	5,500	6,000
Improved water application	Acres	1,410,890	1,350,000	1,300,000
Irrigation water management ...	Acres	595,342	580,000	575,000
Land leveling	Acres	581,245	590,000	600,000
Farm drainage	Acres	1,301,445	1,200,000	1,100,000
Open drains	Miles	16,255	15,000	14,000
Closed drains	Miles	19,767	20,000	21,000
Land clearing	Acres	513,288	500,000	490,000

More than a hundred different practices and measures are used in the local programs of conservation districts varying from place to place according to different needs of the land. The above listed practices represent those most commonly used throughout the country.

These data for 1957 and the estimates for 1958 and 1959 include quantities of the listed practices applied with Soil Conservation Service technical assistance in soil conservation districts. Such assistance was financed mainly with "Conservation Operations" funds; about 15 percent with funds advanced from the item "Agricultural Conservation Program" under the 5 percent transfer provision contained in the annual appropriation act; and about 4 percent from various non-Federal sources.

Group Jobs on Which Technical Assistance Provided

Items	: 1957 : Actual	: Total as of : 6/30/57	: 1958 : Estimate	: 1959 : Estimate
Watershed work plans	:	:	:	:
Number	: 138	: 539	: 120	: 100
Acres	: 8,427,340	: 29,275,247	: 7,200,000	: 6,000,000
Group drainage jobs	:	:	:	:
Number	: 2,398	: 14,607	: 2,350	: 2,300
Acres	: 2,950,850	: 11,026,601	: 2,820,000	: 2,760,000
Group irrigation jobs	:	:	:	:
Number	: 1,079	: 2,644	: 1,130	: 1,200
Acres	: 2,052,994	: 3,548,738	: 2,140,000	: 2,280,000

The downward trend in the number of group job plans for watershed work under the Conservation Operations appropriation is expected because of the increase in the number of applications for watershed projects under Public Law 566, 83rd Congress. The group drainage and irrigation jobs shown for 1957 and estimated for 1958 and 1959 include those on which SCS technical assistance was, or is expected to be, provided during each year.

Major Practices Applied on Group Jobs

Type of Practice	: Unit	: 1957 : Actual	: 1958 : Estimate	: 1959 : Estimate
Ditch and canal excavation ..	(Miles	: 1,304	: 1,200	: 1,200
	(Cu. Yds.	: 11,829,073	: 10,885,000	: 10,885,000
Spoilbank leveling	: Cu. Yds.	: 5,019,013	: 5,000,000	: 4,900,000
Channel improvement	: Lin. Ft.	: 347,012	: 400,000	: 450,000

Conservation Ranching Protects Land
And Helps Maintain Income During Drought

Conservation ranching has protected the land against wind erosion during the recent severe drought in the Southern Plains. In addition, ranchers with established conservation plans have not been subject to the drastic reduction in net income experienced by a large number of ranchers in the heart of the drought area.

Precipitation in much of southwestern Texas was less than half of normal during the 1952-1956 period. With the exception of 1949, rainfall was markedly deficient in most of the area since 1946. A rancher in the Trans-Pecos area, who adopted a conservation plan for his ranch in the early forties, has realized a net profit in all but one year during the drought period. The plant cover has been adequate to protect the land against wind erosion. Conservation practices responsible for sustaining livestock and grass production included adjustments in degree of use to current forage supplies, rotation-deferred grazing, brush control, and a limited amount of supplemental feeding.

In the lower Edwards Plateau area of west Texas, a rancher who has diligently followed conservation ranching principles since 1940, has successfully weathered the drought. Not only has he been able to maintain an adequate cover to protect the land, but also to maintain high livestock production levels with a minimum of purchased feed. Calf crops have averaged over 90 percent, lamb crops from 100 to 120 percent, and sale weights have been comparable to pre-drought levels. Purchase of supplemental feed was not materially increased during the drought period. Principal conservation practices used to maintain these production levels included timely adjustments in degree-of-use, deferred grazing, and brush control.

The Nation is acutely aware of the devastating effects of the drought in terms of damaged lands, reduced income, and drought relief expenditures. Numerous field observations in the severe drought stricken area indicate that rangelands on which conservation ranching has been conscientiously applied have not suffered wind erosion damage. While some livestock operations have suffered severe financial losses, and in some cases operations have been liquidated, ranchers following sound conservation principles have been able to withstand the devastating effects of drought. In addition, they are in better position to realize the benefits of additional moisture when the drought is broken.

Improvement in Terracing

Considerable progress has been made in the improvement of terraces to better adapt the practice to mechanized farming. The objective in this effort is to plan and construct terrace systems having a minimum number of point rows or short rows in the interval between terraces. Such rows are difficult to farm with tractors. Many farmers have refused to use terraces where they were needed or have plowed down existing terraces rather than attempt to operate their tractor equipment on irregular terrace intervals.

It has been found that by a thorough study of the topography, slope, drainage pattern and soils of a field it is often possible to design a terrace system in which many of the terraces are parallel. Where they can be made parallel they offer no impediment to tractor farming. A little more technical time is required to plan such a system. However, this extra time required of the technician is of little consequence

when compared to the time it saves for the farmer as he works his terraced fields year after year. Furthermore, this saving of time and expense for the farmer contributes to a widening of the margin between cost of production and the market value of his crops.

Grass and Legumes Make the Corn Country

Grass and legumes have long been recognized as an important crop in rotations to furnish feed for livestock, save soil, and improve soil productivity. Even with the rapid advances made in cultural and management measures, and improvement in farm equipment, grasses and legumes continue to play an important role in the cropping systems and the conservation of soil and water.

The Lake Plain of Northwestern Ohio is typical of much of the Corn Belt where continuous corn cropping has been very common with a very little of the land being used for rotation hay. During the past six years there has been a substantial increase in the number of farmers who have been profitably inter-seeding their corn fields at the last cultivation with ryegrass, tall fescue or other fast growing grasses and clovers. This grass has reduced splash erosion and surface sealing thus increasing infiltration, added organic material and improved tilth. Many farmers have reported that the grass has helped to use excess moisture in the spring and fall, thus benefiting crop land preparation, and harvesting operations.

Farm Woodlands Profitable

There has been an increasing demand on the Service for technical assistance in selecting planting sites for reforesting worn out fields and cut over lands, checking survival, and in thinning and harvesting operations as farmers realize the value of well-managed woodlands. An example of increased interest is in Louisiana where soil conservation districts are taking an active part in increasing tree plantings and urging better woodland management. The districts consolidate orders from cooperators for seedlings and receive bulk shipments from nurseries. They deliver the trees to individual farmers and collect for the trees as the planting job is done. Through June 30, 1957 farmers in Louisiana cooperating with local soil conservation districts had planted 374,490 acres to trees. During the 1955-56 planting season more than 27½ million trees were planted by farmers cooperating with local soil conservation districts in the State. This figure includes 12,657,000 trees purchased through soil conservation districts, 11,206,500 purchased by district cooperators directly from nurseries, and 3,669,400 furnished free to district cooperators by various companies, agencies and others.

Another example of successful woodland operations is in the Northeast where woodland is one of the most valuable renewable resources. A farmer in Cherry Plains, New York has logged and sold 150,000 board feet of hardwood trees from the 365 acres of woodland in the Berkshire Hills. Cull

trees cut for firewood heat two houses on this 50 cow dairy farm. Commercial loggers have bought and logged another 75,000 board feet that the farmer did not have time to log himself. The woodlands have paid the taxes and insurance on the whole farm every year. The farmer has also reforested 25 acres of land suitable only for growing trees with Scotch pine and Douglas fir in accordance with his conservation plan developed with the Rensselaer County Soil Conservation District. He, like many other farmers throughout the nation has found not only a monetary profit from his farm woodlands but also, a valuable game habitat and a natural watershed cover.

Farm Equipment Industry Emphasizes Conservation

The Service has worked continuously with manufacturers and retailers of farm equipment to promote a better understanding of the value of soil and water conservation to the farm equipment industry. These activities have brought about the development of conservation equipment which has definitely been of assistance in the establishment of sound conservation measures on the farm and ranch lands of the country. Emphasis has been placed on the fact that conservation farming makes better customers of those farm operators who follow conservation practices. This has resulted in a coordinated effort by both the manufacturers and farm equipment retailers to learn the kinds of practices which are most beneficial to their customers. Putting this knowledge to use enables the industry to produce and supply the equipment best suited to the changing needs of conservation farmers.

The Farm Equipment Institute with the advice and consultation of the Service has recently completed work on a colored film strip "Partners in Profit". It is intended to show dealers the value of maintaining close working relationships with soil conservation district supervisors. The film strip further outlines methods by which dealers and supervisors can most effectively establish and maintain a mutually desirable partnership. It was produced by the manufacturers as a part of the industry-wide "Dealer-District Program" to help the retail merchants who serve farm operators become an active part of the local soil conservation district activities. The dealer benefits from such a program because it enables him to better determine both the current needs of his customer and to learn when new practices are to be introduced which change the kind of equipment needed in the community. The district benefits because it acquires local merchants as partners for conservation land treatment who are in constant contact with district cooperators. These merchants are in an excellent position to assist their customers in the application of the conservation tillage, seeding and construction practices by supplying equipment specifically adapted to new requirements.

Snow Surveys and Water Supply Forecasting

Water use has expanded so greatly in the United States during the past quarter century that demands for water in many places now exceeds the readily available supply. This has created a recognized need for better management of the supply. Forecasts of the amount and distribution of stream flow is an acknowledged tool to improve water management. The Service, in cooperation with many Federal, State, and local agencies and with private enterprises, conducts snow surveys and makes water supply forecasts in all of the 12 Western States. These forecasts are guides to decision and make possible improved water management, lessen water waste, reduce production costs, and encourage protective measures to be planned and taken in advance of either drought or flood.

In the winter of 1956-57, snow pack measurements were made on 996 snow courses and at 109 soil moisture stations to provide information for 1,344 water supply forecasts, benefitting 13,275,000 acres of irrigated farm land. Twenty-four local and basin-wide water forecasts meetings were conducted by Service professional personnel. Advance information was made available to 377 soil conservation districts on prospective water supply. There were 816 part-time snow surveyors participating in collecting this information. Emphasis on safety training in this hazardous work continued. Special tests of short wave mobile radios were made to facilitate equipping over-snow equipment with such radios for safety of operators and for expediting results of the snow surveys to the water users.

The snow surveys provided information which was used by farmers and ranchers throughout the west to prepare cropping plans based on the estimated seasonal water supply from the snow pack. The information was used also by Federal agencies, power companies and other water users to anticipate flow stages and in reservoir storage regulation and operation plans. Service data and interpretations were made available to the farmers and the general public through the customary series of monthly Service bulletins issued at intervals between January 1 and May 1; through newspapers, television and radio media and by widest possible use of numerous farm and trade journals.

An example of use by agriculture of this information has come from an economic study made on the Salmon Falls Tract of the Twin Falls Soil Conservation District in Idaho. There are about 70,000 acres of irrigable land in this tract of which some 10,000 to 35,000 are actually irrigated each year, depending upon the water supply. Farmers were planning for about 25,000 acres of crops before stream flow forecasts based on snow surveys were available. After their annual meeting the Twin Falls Soil Conservation District board recommended that reductions be made and the farmers revised their plans downward to about 12,000 acres because of the short water supply.

Conservation Needs Inventory Under Way

The national inventory of soil and water conservation needs was well underway in more than half of the Nations' 3,000 counties during the 1957 field season. At the direction of the Secretary, eight departmental agencies are assigned inventory responsibilities under leadership of the Soil Conservation Service. Other Federal, State and local agencies are participating. Based upon statistical sampling and analyses, estimates of the nature, location and extent of our soil, water, and plant resource problems are scheduled for completion by counties and States before January 1, 1960.

The inventory will enable the Department and others to make reasonable estimates of the kind and urgency of the actions needed for efficient programming, research, administration, legislation and other purposes. It will provide basic facts about our soils and their water and plant relationships, expected changes in land use and the amount and kind of treatment needed by problem area. An inventory of watershed problems which require project action of the nature possible under the Watershed Protection and Flood Prevention is also being included.

Soil surveys are being made of 100 acre samples in the Eastern States and 160 acre samples in the Mid-West and Western States as a basis for the inventory. Arrangements have been made with Iowa State College, Cornell University, and Texas A & M College to complete drawing the samples for all States and Territories. Statistical analyses of these data will be performed in the laboratories of these institutions.

Rural-Urban Problems

Expanding industry, more and wider rights-of-way for roads and airports, outdoor theaters and suburban developments are encroaching on good farm land. In recent years there has been a greater movement of urban people to country property. Some suburbanites are interested in getting agricultural production from the land while others are simply interested in establishing a home or in using the land primarily for recreation. On the other hand, many farmers are getting jobs in the cities and are adding to the already large number of part-time farmers. This complex of problems that arise from the intermingling of urban and rural interests, has come to be known as problems of "rurbanism".

"Rurbanism" and part-time farming have become problems in more than half of all the soil conservation districts in the country. About 80 districts in the populous northeastern seaboard and near large industrial centers in the Midwest, South and Southwest, and on the Pacific Coast, are losing good farm land at an alarming rate. More than 80 percent of the cooperators in several soil conservation districts in Massachusetts and Connecticut are landowners not interested in producing agricultural products for market.

There are numerous and difficult problems associated with the development of land for these more intensive uses than the production of agricultural products. These are normal and necessary developments that need the best guidance available. Land covered by highways, airports, military installation, factories, homes, and other structures present many problems in soil and water management including loss of water supplies, increased flood hazards, pollution, sedimentation, and increased erosion damage. Technical resources of the Service are being requested in ever-increasing amounts to work on these problems.

A study of this problem is underway, with a view to determining the effects of this movement on conservation accomplishments and to developing the best ways the Soil Conservation Service can help meet the conservation needs of these lands. Some of the questions needing further study are: What technical recommendations need changing for land not producing agricultural products for market? Are zoning, protective covenants, regulations and ordinances needed to protect the remaining good agricultural land? Can practical watershed protection and flood prevention projects be developed in "rurban" areas? How do people in this rural-urban zone fit in with soil conservation districts, and how are they to be presented? Does the general public understand the nature and importance of this problem?

Current Plant Materials Activity

Plant materials have a very important role in the conservation program. New problems arise constantly in connection with the installation of vegetative erosion and water control measures which require new or adapted conservation plant materials or cultural practices. Potentially promising plant materials are located and established in seed increase plots at seventeen strategically located plant materials centers. At these centers and in field-scale trial plantings on the farms and ranches of soil conservation district cooperators these plant materials are tested under different cultural and management practices. These plantings are observed and evaluated to determine their effectiveness in soil and water conservation work and usefulness as crops under varying soil, moisture, and climatic conditions. Finally, small amounts of seed are made available to seed growers, usually in cooperation with State seed improvement associations, for seed increase and large-scale production and distribution through regular commercial channels.

The widespread use of many of the conservation practices needed to solve land use and soil and water control problems is dependant upon the availability to the landowners and operators of appropriate plant materials. For example a useful vegetative cover was needed for salty and alkali soils in the Western States. Tall wheatgrass and Payette lotus, a

narrow leaf birdsfoot trefoil, were selected and developed at the Pullman, Washington Plant Material Center. Farmers and ranchers in the West are now producing good quality feed and forage from thousands of acres of formerly almost useless lands. In the New England States, Wichura rose was found to be suitable for covering bare clay slopes. Later orchard-grass, a leafy, productive, late maturing, winter-hardy type was selected and developed to fill the need for a grass companion for alfalfa on irrigated crop land in the Northwest to better control erosion and improve the soil.

In the Southeast Ball clover, a reseeding winter legume for use with grass sod, has been found productive and persistent under severe use, poor soil and unfavorable weather conditions. Wild peanut and Leucaena glauca, palatable legumes for livestock grazing, and switchgrass, torpedo grass and Bermuda grass strains to stabilize sand dune areas of the coast were tested and are also being widely used in the same area.

Waterways in the Cornbelt are improved by the use of Switchgrass in droughty sites and Reed foxtail and birdsfoot trefoil in wet sites. These grasses were selected for use in place of less suitable species as result of testing and field trials under this program. Successful methods of seed production of useful native grasses, establishment of new grass seedings under difficult conditions, and harvesting high quality native grass seeds at moderate cost have been developed to solve a number of troublesome problems in the Great Plains and in the Southwest.

Plant Materials Centers

Five additional plant materials centers were established during the year with increases made in 1957 appropriation for this purpose. These new plant materials centers are located in Arcadia, Florida where plants will be tested under tropical and sub-tropical conditions in the States and the Caribbean Islands; at Lansing, Michigan for northern cornbelt conditions; at Los Lunas, New Mexico for the arid southwest; at Corvallis, Oregon for several special conservation problems in the northwest; and at Maui Island, Hawaii for the soil and climatic conditions peculiar to the Hawaiian Islands.

The plant materials work of the Service is conducted cooperatively with State and Federal agencies. They are located in agricultural areas where they will best serve the needs of the conservation program. Eight of the centers are operated under cooperative agreements by qualified State agencies and nine are operated by the Service. The location and operation of the plant materials centers is described in the following table:

Location of Center

Operated by

Tucson, Arizona	Arizona State Agricultural Experiment Station
Pleasanton, California	Soil Conservation Service
Americus, Georgia	University of Georgia
Aberdeen, Idaho	Soil Conservation Service
Manhattan, Kansas	Kansas State College
Elsberry, Missouri	Soil Conservation Service
Big Flats, New York	Alfred University
Scottsbluff, Nebraska	Nebraska State Agricultural Experiment Station
Bismark, North Dakota	North Dakota Association of Soil Conservation Districts
Spur, Texas	Texas State Agricultural Experiment Station
Pullman, Washington	Soil Conservation Service
Beltsville, Maryland	Soil Conservation Service (as national plant materials center)
Arcadia, Florida *	Soil Conservation Service
Lansing, Michigan *	Soil Conservation Service
Los Lunas, New Mexico *	New Mexico Agricultural Experiment Station
Corvallis, Oregon *	Soil Conservation Service
Maui Island, Hawaii *	Soil Conservation Service

* Established during fiscal year 1957.

(b) Watershed Protection

Appropriation Act, 1958 and base for 1959	\$25,500,000
Amended Budget Estimate, 1959 (including \$10,000,000 proposed in H. Doc. 351)	<u>24,000,000</u>
Decrease	<u>-1,500,000</u>

Note: Although a decrease of \$1,500,000 is proposed in the appropriation for 1959, total obligations will increase \$9,028,218 above those for the fiscal year 1958. Thus, total obligations in 1959 are estimated at \$32,839,000 compared with obligations of \$23,810,782 in the fiscal year 1958. This increase in the program level is made possible by the carryover of \$8,839,000 from the fiscal year 1958 to the fiscal year 1959.

SUMMARY OF INCREASES AND DECREASES, 1959
(On basis of available funds)

Increase in the Federal share of the cost of installing watershed works of improvement	+9,028,218
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PROJECT STATEMENT
(On basis of available funds)

Project	1957	1958 (estimated)	Increase or Decrease	1959 Amended Estimate
1. Investigations and planning	\$3,903,666	\$4,700,000	- -	\$4,700,000
2. Installation of works of improvement	8,312,984	16,610,782	+\$9,028,218(1)	25,639,000
(a) "Pilot" demonstra- tion watersheds	(4,793,450)	(7,860,782)	(-4,171,782)	(3,689,000)
(b) Watersheds author- ized under P.L. 566	(3,519,534)	(8,750,000)	(13,200,000)	(21,950,000)
3. Loans and related expense	- -	1,500,000	- -	1,500,000
4. Surveys and investi- gations of water re- source program	737,732	1,000,000	- -	1,000,000
Total obligations or estimate	12,954,382	23,810,782	+9,028,218	32,839,000
Unobligated balance brought forward	-2,604,164	-7,149,782	-1,689,218	-8,839,000
Unobligated balance carried forward	7,149,782	8,839,000	-8,839,000	- -
Total appropriation or estimate	17,500,000	25,500,000	-1,500,000	24,000,000

INCREASE

(1) An increase of \$9,028,218 in the amount of funds estimated to be needed in 1959 for financing the Federal share of the cost of installing watershed works of improvement.

The estimated obligations for works of improvement in 1958 and 1959 are shown in the following tabulation:

	<u>1958</u> <u>Estimate</u>	<u>Increase</u> <u>or</u> <u>Decrease</u>	<u>Amended</u> <u>1959</u> <u>Estimate</u>
"Pilot" watersheds	\$7,860,782	-\$4,171,782	\$3,689,000
P. L. 566 watersheds	<u>8,750,000</u>	<u>+13,200,000</u>	<u>21,950,000</u>
Total obligations	<u>16,610,782</u>	<u>+9,028,218</u>	<u>25,639,000</u>

Pilot Watersheds

The budget for 1959 proposes a reduction in the amount of \$4,171,782 from the level of operations planned to be carried on in "pilot" watershed projects during 1958. Installation of watershed works of improvement is scheduled for completion during the 1958 fiscal year in 32 of the 54 currently active projects. The reduced budget estimate would provide all the funds that would be needed to continue planned work on the other 22 watersheds during the 1959 fiscal year. The work on these watersheds is scheduled for completion by the close of the fiscal year 1961. Program evaluation studies are planned to be continued beyond that date on a number of the completed "pilot" demonstration watershed projects.

Public Law 566 Watersheds

A total of 162 watershed work plans are expected to have been prepared by the end of the 1958 fiscal year under authority of the Watershed Protection and Flood Prevention Act, as amended. Work plans for forty-two of the watersheds had been approved for installation of works of improvement by the close of the 1957 fiscal year. An additional 60 are expected to be approved during the 1958 fiscal year. The local sponsoring organizations will proceed with the installation of structural and land treatment measures in these 102 projects during 1958 with the technical and financial assistance to be made available by the Department under this item. It is estimated that an additional 108 projects will be approved for installation of works of improvement during the 1959 fiscal year. Two watersheds are scheduled for completion in 1958 and one in 1959. This would make a total of 207 projects in operation at the end of 1959.

The work plans for the P. L. 566 watershed projects that are approved for operation include installation schedules which provide the timing for preparation by the Department of detailed construction plans, designs, and specifications for specific flood prevention and water management structures and other works of improvement that are to be installed. The local sponsoring organizations which cooperate in carrying out the Watershed Protection program are required to arrange for the installation of measures on other than Federal lands. The work is generally done by local contractors under competitive bidding procedures. Federal agencies arrange for work to be done on lands which they administer. Payment for the Federal share of the cost of installing works of improvement is made to the cooperating local organization in most cases as the work progresses although advance payments are authorized. The Department provides necessary engineering supervision over construction either directly or by the advancement of funds to the local organization for the employment of engineering services. This work would be accelerated to the fullest extent possible in areas of unemployment.

Technical assistance is also provided under this item to accelerate farm and ranch conservation planning and application of conservation practices in the watersheds in accordance with the schedules included in the watershed work plans of the approved projects.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- For expenses necessary to conduct surveys, investigations, and research and to carry out preventive measures, including, but not limited to, engineering operations, methods of cultivation, the growing of vegetation, and changes in use of land, in accordance with the Watershed Protection and Flood Prevention
- 1 Act, approved August 4, 1954, as amended (16 U.S.C. 1001-1007), and the provisions of the Act of April 27, 1935 (16 U.S.C. 590a-590f), to remain available until expended, [\$25,500,000] \$24,000,000, with which shall be merged the unexpended balances of funds heretofore appropriated or transferred to the Depart-
 - 2 ment for watershed protection purposes: Provided, That not to exceed \$100,000 may be used for employment pursuant to the second sentence of section 706(a) of the Organic Act of 1944 (5 U.S.C. 574), as amended by section 15 of the Act of August 2, 1946 (5 U.S.C. 55a).

The first change would add the words "as amended" to the citation to the enabling Act of August 4, 1954. This Act was amended August 7, 1956 (Public Law 1018, 84th Congress) the provisions of which are now incorporated in Title 16 U.S.C. 1001-1007). This change is merely clarifying and does not change the authorities previously cited in the language.

The second change in language would provide authority for the employment of experts, consultants, and advisers, or organizations, by contract and on a temporary basis, at rates not to exceed the per diem equivalent of the highest rate payable under the Classification Act. Not more than \$100,000 could be used for such employment in any one fiscal year. This is similar authority to that which presently exists under the item "Flood Prevention."

A need has developed in the Watershed Protection Program for hiring experts, consultants, engineering firms or organizations or similar types of professional organizations, to furnish consultation and advice or assistance in the many technical phases of watershed planning and works of improvement. The proposed language would permit the Department to secure such services as circumstances require.

STATUS OF PROGRAM

Current Activities:

The Watershed Protection and Flood Prevention Act (Public Law 566, 83rd Congress), as amended, provides for cooperation between the Federal Government and the States and their political sub-divisions in a program to prevent erosion, floodwater, and sediment damages in the watersheds of rivers and streams and to further the conservation, development, utilization, and disposal of water. The work of the Department under this item consists of the following:

1. Investigations and surveys of proposed small watershed projects upon application by local sponsoring organizations and collaboration with them in the preparation of project work plans. These plans outline the proposed works of improvement to be installed and include the estimated costs, a cost-benefit analysis, cost-sharing and maintenance arrangements, a proposed schedule of operations, and other facts needed to determine whether Federal participation in the cooperative project should be approved.
2. Participation in the installation of works of improvement in approved watershed projects. Detailed construction plans and specifications are prepared for specific flood prevention and agricultural water management features of the project. The Federal Government bears all of the construction cost of the flood prevention and related features except easements and rights-of-way, and an equitable part of the cost of construction of the agricultural water management features. Local organizations must pay all other costs. Funds are provided to local organizations for the Federal share of the cost of contracts they award for installation of works of improvement on other than Federal lands. The Federal agencies do this work on Federal lands which they administer with appropriate contributions being made by the local people who receive benefits. Engineering supervision is provided over flood prevention and agricultural water management construction work, either directly by the Federal Government or by advancement of funds to local organizations for employment of engineers. Technical assistance is provided to accelerate the planning and application of land treatment measures in the watersheds to prevent erosion and protect the structural work of improvement from flood and sediment damage.
3. Installation on a cost-sharing basis, of improvement measures on 54 currently active "pilot" watersheds which serve as demonstrations of the effectiveness of complete watershed treatment in preventing erosion and reducing floodwater and sediment damage.

4. Program evaluation studies in selected watershed protection projects to determine the effectiveness of structural and land treatment measures installed.
5. Surveys and investigations of the watersheds of rivers and other waterways in cooperation with other Federal, State and local agencies, as the basis for the development of coordinated program.
6. The making of loans to local organizations to finance the local share of the costs of carrying out works of improvement for flood prevention and for the conservation, development, utilization, and disposal of water.

Program Assignments

The Soil Conservation Service has general responsibility for administration of the work of the Department authorized under the Watershed Protection and Flood Prevention Act and for the formulation of guiding principles and procedures. It assists local organizations with (a) the development of watershed work plans and (b) the application of land treatment measures and the installation of structural works of improvement on non-Federal land in authorized watersheds. Some works are also installed on Federal lands by arrangement with the administering agency. It also makes surveys and investigations of the watersheds of rivers and waterways and cooperates with other agencies in the planning, development, and coordination of works and programs.

The Forest Service participates in the development of watershed work plans and in the installation of watershed improvement measures. It concerns itself with (a) all national forest and other lands in the authorized watersheds that are administered by the Forest Service, (b) all range lands in or adjacent to national forest and used in conjunction with such forests under formal agreement with the landowners, and (c) certain specialized technical assistance on other forest lands in the watersheds. It also provides specialized assistance in forestry aspects of coordinated river basin programs.

The Bureau of Land Management and the Bureau of Indian Affairs participate in the planning and installation of works of improvement on lands under their jurisdiction. The Agricultural Research Service assists with the development of criteria to be used in the economic evaluation of work plans and measures installed in small watershed projects. It also makes special economic analyses of specific watershed projects and of river basin resource development proposals. The Farmers Home Administration has responsibility for administration of Section 8 of the Act relating to loans to local organizations.

Funds are made available from this appropriation to the U. S. Weather Bureau and the U. S. Geological Survey, either by transfer or reimbursement, for precipitation and runoff data needed in watershed program evaluation, planning, and design work.

Examples of Recent Progress:

INVESTIGATIONS AND PLANNING

Agency Participation

Allocations of funds to the Cooperating agencies for 1957 and 1958 and proposed for 1959 for investigations and planning watershed protection projects are as follows:

Agency	1957 Obligations	1958 Estimate	1959 Amended Estimate
Soil Conservation Service <u>1/</u>	\$3,562,325:	\$4,259,295:	\$4,281,549
Forest Service	240,385:	360,000:	360,000
Agricultural Research Service	25,794:	18,501:	18,501
Office of the Secretary	3:	- - :	- -
U. S. Geological Survey	75,159:	62,204:	39,950
Total	3,903,666:	4,700,000:	4,700,000

1/ Amounts include approximately \$40,000 each year for reimbursable work performed by the U. S. Weather Bureau.

Development of Watershed Work Plans

Local interest continues to grow in small watershed projects. During the 1957 fiscal year 165 new applications for watershed projects assistance were received by the Administrator from local sponsors, bringing to 712 the total received as of June 30, 1957. These applications cover 55,585,400 acres of watershed lands in 47 States and Territories. The Administrator approved 96 additional applications for work plan development during the fiscal year. As of June 30, 1957 a total of 268 applications for 20,531,200 acres of watershed lands had been approved for work plan development. A total of 91 watershed work plans had been developed by the end of the fiscal year. The following table shows the status of project applications and planning under Public Law 566 as of June 30, 1957 and estimate for 1958 and 1959.

Item	Fiscal Year				
	1955	1956	1957	1958	(Amended) 1959
Applications for watershed projects					
received current year	353	194	165	150	150
Cumulative total	353	547	712	862	1,012
Watersheds approved for planning	68	172	268	358	488
Field work completed and plans					
under review before final					
approval	- -	19	49	60	60
Watersheds authorized for installa-					
tion of works of improvement	- -	13	42	102	210
Planning suspended	- -	10	39	58	66
Planning in process	68	130	138	138	152
Balance:					
To be planned	- -	175	164	204	214
Not now suitable for development					
of plans	- -	200	280	300	310

Watershed planning assistance had been authorized in 46 States by June 30, 1957. Planning parties have been approved for 42 States and planning personnel assigned to the other States on a part-time basis in accordance with their planning work load. The U. S. Forest Service has assigned personnel to work with the watershed planning parties in those locations where the forestry program of a watershed requires such planning assistance.

Multiple-Purpose Works of Improvement

Section 2 of Public Law 566, as amended August 7, 1956, authorizes the Secretary of Agriculture to assist local organizations to plan and carry-out multiple-purpose water and land-management projects in watershed areas of not more than 250,000 acres. Assistance from the Department in varying kinds and amounts is available in accordance with the purposes served by the project. Under the amended Act local people may now include in their watershed plans all phases of water resources development to assure the best and most effective conservation use and control of water to meet their needs. In the case of flood prevention works of improvement, the cost of construction is borne by the Federal Government. The cost of irrigation and drainage works is shared equitably between the local people and the Federal Government.

Where works include such purposes as improved municipal and industrial water supply, recreation, fish and wild-life improvement, pollution abatement by stream flow regulation, and saline water intrusion control, as an integral part of the total plan for the protection and improvement of the land and water resources of the watershed, cost of such features must be borne entirely by the local people.

Local organizations have shown much interest in the multiple-purpose project approach to their watershed problems. Six of the 13 projects approved for operations between January 1 and June 30, 1957, included purposes in addition to watershed protection and flood prevention, most of which are related to agricultural water management such as irrigation and drainage. This limited experience indicates that future watershed projects will serve the local people even better than in the past through incorporation other needed water management features with the flood prevention and watershed protection measures.

INSTALLATION OF WORKS OF IMPROVEMENT

Agency Participation

Allocation of funds to the cooperating agencies of the Department of Agriculture and the Department of Interior for 1957 and 1958 and proposed for 1959 for works of improvement on Watershed Protection projects are as follows:

Agency	1957 Obligations	1958 Estimate	1959 Amended Estimate
Soil Conservation Service:			
Pilot Watersheds	\$4,506,591	\$7,535,930	\$3,586,775
P. L. 566 Watersheds	3,432,154	8,543,748	21,553,538
Forest Service:			
Pilot Watersheds	251,607	280,000	64,225
P. L. 566 Watersheds	37,839	102,295	300,000
Agricultural Research Service:			
Pilot Watersheds	35,252	44,852	38,000
P. L. 566 Watersheds	32,898	30,274	37,299
Bureau of Land Management:			
P. L. 566 Watersheds	14,165	31,655	7,735
Bureau of Indian Affairs:			
P. L. 566 Watersheds	2,478	2,478	2,478
U. S. Geological Survey:			
P. L. 566 Watersheds	- -	39,550	48,950
Total	8,312,984	16,610,782	25,639,000

New Watershed Projects Authorized

As of March 1, 1958, approval had been given to initiate operations on a total of 71 watershed projects in 34 States for which work plans had been prepared under authority of the Watershed Protection and Flood Prevention Act (Public Law 566, 83rd Congress), as amended. Twenty-nine of these have been approved for operation since July 1, 1957. It is estimated that approval will be given to begin installation of watershed works of improvement on an additional 31 projects during the fiscal year 1958. There would thus be 102 "Public Law 566" projects sponsored by local organizations in operation by June 30, 1958, and receiving financial assistance from the Federal Government. In addition, it is anticipated that 108 additional projects will be approved for operation in 1959. The Federal Government's commitments for all of these projects are estimated as follows:

Explanation	Fiscal Year					
	1957 Actual		1958 Estimate		Amended 1959 Estimate	
	No.:	Amount	No.:	Amount	No.:	Amount
Projects continued from	:	:	:	:	:	:
prior years and estimated:	:	:	:	:	:	:
cost of completion at	:	:	:	:	:	:
beginning of year	13	\$12,479,004	42	\$17,588,686	100	\$39,138,686
Projects initiated during	:	:	:	:	:	:
the year and estimated	:	:	:	:	:	:
cost of completion	29	8,570,283	60	30,300,000	108	67,500,000
Total approved projects:	:	:	:	:	:	:
and estimated cost	:	:	:	:	:	:
of completion	42	21,049,287	102	47,888,686	208	106,638,686
Deduct:	:	:	:	:	:	:
Amounts obligated during	:	:	:	:	:	:
year for works of	:	:	:	:	:	:
improvement on:	:	:	:	:	:	:
(a) Projects initiated	:	:	:	:	:	:
during the year :	xx	1,816,233	xx	3,700,000	xx	7,090,000
(b) Projects completed	:	:	:	:	:	:
during the year :	xx	-	2	50,000	1	10,000
(c) Other projects .	xx	1,644,368	xx	5,000,000	xx	14,850,000
Total	xx	1/3,460,601	2	8,750,000	1	21,950,000
Total projects in progress :	:	:	:	:	:	:
at end of year and esti-	:	:	:	:	:	:
mated cost of completion :	42	17,588,686	100	39,138,686	207	84,688,686

^{1/} Does not include \$58,933 undistributed costs of capital equipment.

Status of Pilot Projects

At the close of the fiscal year 1957 there were 54 active pilot watershed projects in thirty-two States. Operations were terminated at the request of the sponsors in three projects during the year. The schedule for completion of works of improvement and the Federal Government's commitments for these pilot projects are estimated as follows:

Explanation	Fiscal Year					
	1957 Actual		1958 Estimate		1959 Estimate	
	No.:	Amount	No.:	Amount	No.:	Amount
Approved projects in operation and estimated cost of completion at beginning of year	57	\$18,511,608	54	\$13,300,884	22	\$5,440,102
Deduct:						
Projects discontinued during the year and estimated cost of completion.	3	417,274	-0-	--	-0-	--
Amount obligated during year for:						
(a) Projects completed during the year ..	-0-	29,174	32	2,355,197	3	210,000
(b) Other projects	xx	4,764,276	xx	5,505,585	xx	3,479,000
Total	xx	4,793,450	32	7,860,782	3	3,689,000
Total projects in progress at end of year and estimated cost of completion	54	13,300,884	22	5,440,102	19	1,751,102

Good progress has been made in working toward completion of the original 58 pilot watershed projects on which work was initiated. As of June 30, 1957, one project had been fully completed, three were discontinued, 19 were 90% completed and 25 were from 50% to 90% completed. Only ten were less than 50% completed. Installation of planned watershed improvement measures is scheduled for completion on all "pilot" projects by the end of the 1961 fiscal year.

At the close of the 1957 fiscal year the following major structural measures were contracted for or had been installed in "pilot" watersheds:

Floodwater retarding structures 231

Stabilizing and sediment control structures .. 502

Channel stabilizing and improvement 234 miles

The following table shows by State and watershed name descriptive information concerning each Pilot and Public Law 566 watershed approved for installation of a program of works of improvement by June 30, 1957:

State and Watershed	Watershed	Estimated	% Fed.	Total	% of	Sched.
	Area	Federal	Cost	Cum. Fed.	Fed	Date of
	(Acres)	Cost	to	Obligation	Cost	Com-
			Total	6/30/57	Oblig.	ple-
			Cost		6/30/57	tion
<u>ALABAMA</u>						
Clear Creek	11,800	\$50,638	61.2	574	1.1	1962
<u>ARIZONA</u>						
White Tanks (Pilot) 3/	178,560	219,000	49.5	213,507	97.5	1955
Squaw Peak-South						
Mountain (Pilot) 1/..		-	-	0	-	-
<u>ARKANSAS</u>						
Six Mile Creek (Pilot)	168,320	2,190,000	67.0	1,884,667	86.1	1958
<u>CALIFORNIA</u>						
Adobe Creek (Pilot) 2/	21,440	50,740	-	50,740	100.0	1955
Arroyo Grande Creek ..	103,400	289,244	70.8	138,630	47.9	1962
Calleguas Creek (Pilot)	208,000	1,561,000	26.8	1,352,532	86.6	1961
Walnut Creek (Pilot) ..	80,000	2,316,000	38.1	1,416,717	61.2	1961
<u>COLORADO</u>						
Kiowa Creek (Pilot) ..	106,880	800,000	62.7	404,351	50.5	1960
Wray Watershed	2,386	155,860	88.3	9,056	5.8	1962
<u>DELAWARE</u>						
Bear Hole	4,523	174,748	53.8	142,745	81.7	1962
<u>FLORIDA</u>						
Lake Placid East Chain						
of Lakes	12,500	30,929	62.1	7,592	24.5	1960
<u>GEORGIA</u>						
Bear Creek	23,324	180,574	41.3	22,554	12.5	1962
North Fork of Broad						
River (Pilot)	25,414	731,000	56.5	497,058	68.0	1959
Rocky Creek	20,700	39,553	21.4	6,007	15.2	1962
<u>IDAHO</u>						
Dry Creek (Pilot) 2/..	44,800	101,759	75.8	101,759	100.0	1957
<u>ILLINOIS</u>						
Hadley Creek (Pilot) ..	46,272	1,180,000	61.5	455,272	38.6	1961
Money Creek (Pilot) ..	42,800	55,000	61.5	29,320	53.3	1958
Old Tom Creek (Pilot).	11,520	298,000	83.3	170,691	57.3	1958
Tiskilwa Area	3,300	350,496	89.2	268,969	76.7	1959
<u>INDIANA</u>						
Flat Creek (Pilot) ..	36,634	171,000	54.9	162,041	94.8	1958

State and Watershed	Watershed : Area (Acres)	Estimated : Federal Cost	% Fed. : Cost to Total Cost	Total : Cum. Fed. Obligation: 6/30/57	% of : Fed. Cost Obligation: 6/30/57	Sched. : Date of Completion
IOWA						
Floyd River Tributaries (Pilot)	15,776	\$144,000	14.8	23,029	52.3	1961
Harmony Creek	3,100	145,590	83.3	135,816	93.3	1958
Honey Creek (Pilot) ...	9,120	244,000	50.4	223,934	91.8	1958
Mule Creek (Pilot) ...	8,000	459,000	63.0	457,209	99.6	1958
KANSAS						
Aiken Creek (Pilot) ..	30,528	112,000	58.0	109,510	97.8	1958
Bills Creek (Pilot) 2/	16,000	20,973	-	20,973	100.0	1954
Cimarron Watershed ..	6,440	109,091	65.9	4,420	5.2	1960
Little Delaware Mission (Pilot)	28,160	548,000	61.0	435,742	79.5	1958
Lost Creek (Pilot) ...	12,800	201,000	53.6	85,532	42.6	1960
Snipe Creek (Pilot) ..	16,640	181,000	48.4	138,777	76.7	1958
Switzler Creek (Pilot) ..	21,120	320,000	45.2	115,031	35.9	1961
KENTUCKY						
Cypress Creek	32,424	193,199	26.0	0	0	1962
North Fork of Rough River (Pilot)	24,960	373,000	45.9	281,567	75.5	1958
Plum Creek (Pilot) ...	22,560	532,000	47.1	447,248	84.1	1958
Red River (Pilot)	60,000	371,000	58.2	297,797	80.3	1958
Twin Creek	17,418	55,085	20.3	3,218	5.8	1962
Upper Green River (Pilot)	24,998	382,000	58.9	338,274	88.6	1958
LOUISIANA						
Bayou Dupont	57,610	1,342,353	66.5	352,053	26.2	1962
MARYLAND						
Little Deer Creek	10,112	169,623	68.5	44,978	26.5	1962
Little Youghiogheny ..	26,275	362,971	58.1	1,005	0.3	1962
Timmons Town Branch ..	8,655	174,341	49.8	0	0	1962
MINNESOTA						
Chippewa River Tribs. & Hawk Creek (Pilot) ..	60,800	1,627,000	85.4	540,381	33.2	1961
Rush Pine Creek	88,050	49,510	20.9	4,182	8.4	1962
South & North Fork of the Crow (Pilot) 1/ ..	-	-	-	0	-	-
East Willow Creek (Pilot)	24,000	249,000	61.1	151,595	60.9	1958

State and Watershed	Watershed : Area (Acres)	Estimated : Federal Cost	% Fed. : Cost to Total Cost	Total : Cum. Fed. Obligation 6/30/57	% of Fed. : Obligation 6/30/57	Sched. : Date of Completion
<u>MISSOURI</u>						
East Branch of the South Fork of the Black Water River (Pilot)	12,800	449,000	59.4	247,100	55.0	1960
Lost Creek (Pilot) ...	8,960	328,000	68.8	196,205	59.8	1959
<u>MONTANA</u>						
Muster Creek (Pilot) 2/	32,000	8,622	-	8,622	100.0	1955
<u>NEBRASKA</u>						
Brownell Creek (Pilot)	15,360	523,000	55.8	324,990	62.1	1960
Dry Creek (Pilot)	31,360	368,000	47.1	214,917	58.4	1959
Indian Creek (Pilot) .	51,200	687,000	49.1	523,035	59.0	1961
Oak-Middle Creek	240,000	935,915	30.7	24,399	2.6	1965
Plattsmouth Area	2,465	114,400	49.5	8,141	7.1	1962
Upper Salt-Swedeburg (Pilot)	114,516	1,618,000	55.3	784,590	48.5	1961
Wild Horse	26,000	347,645	40.6	0	0	1965
<u>NEW HAMPSHIRE</u>						
Baboosic Brook (Pilot)	30,528	56,000	45.3	46,945	83.8	1958
<u>NEW JERSEY</u>						
Pequest (Pilot)	69,120	771,000	66.7	493,859	64.1	1958
Silver Lake-Locust Island	5,590	148,917	75.3	0	0	1962
Stony Brook	32,000	266,910	53.2	18,996	7.1	1967
<u>NEW MEXICO</u>						
Dona Ana Arroyo	6,950	229,678	97.1	221,755	96.6	1958
Hatch Valley Arroyo .	14,521	204,847	99.1	137,672	67.2	1961
Sandia Mt. Trib. (Pilot)	48,000	146,000	81.0	137,388	94.1	1958
Upper Rio Hondo (Pilot)	192,000	777,000	66.0	319,275	41.1	1960
Upper Rio Penasco	128,000	313,437	87.4	0	0	1962
<u>NEW YORK</u>						
Ball Creek (Pilot) 2/	5,888	20,102	83.0	20,102	100.0	Term 12/31/56
Dean Creek (Pilot) ...	6,400	127,000	73.6	120,085	94.6	1958
Great Brook (Pilot) ..	16,640	102,000	57.8	57,416	56.3	1958
Little Hoosick (Pilot)	21,760	469,000	75.9	104,814	22.3	1960
<u>NORTH CAROLINA</u>						
Third Creek (Pilot) ..	66,240	710,000	47.6	414,725	58.4	1960

State and Watershed	Watershed: Area (Acres)	Estimated Federal Cost	% Fed. Cost to Total Cost	Total Cum. Fed. Obligation: 6/30/57	% of Fed. Cost Oblig. 6/30/57	Sched. Date of Com- ple- tion
NORTH DAKOTA						
Tongue River (Pilot) .	419,200	3,816,000	78.6	1,122,213	29.4	1960
OHIO						
Rocky Fork-Clear Creek (Pilot) 2/ ...	28,045	92,039	61.1	92,039	100.0	6/30/57
Upper Hocking River (Pilot)	21,121	905,000	67.1	405,832	44.8	1960
OKLAHOMA						
Big Wewoka Creek	172,525	2,053,331	50.6	262,615	12.8	1967
Double Creek (Pilot) .	33,280	373,000	57.2	356,217	95.5	1958
Little Wewoka-Graves Creek	122,445	934,486	46.1	226,443	24.2	1967
Long Branch Creek	26,160	305,543	49.0	66,040	21.6	1962
PENNSYLVANIA						
Corey Creek (Pilot) .	16,000	67,000	39.6	60,190	89.8	1958
Jacks Run (Pilot) 1/ .	-	-	-	0	-	-
SOUTH CAROLINA						
Coneross Creek,	43,300	455,014	57.7	23,016	5.1	1962
Twelve Mile Creek (Pilot)	78,720	1,224,000	49.4	546,550	44.7	1961
SOUTH DAKOTA						
Silver Creek	20,661	260,769	68.0	3,334	1.3	1962
Scott Creek (Pilot) ..	2,560	132,000	72.6	127,532	96.6	1958
TENNESSEE						
Johnson Creek	22,610	367,793	58.8	14,705	3.8	1962
Wolf River Trib.(Pilot):	14,528	396,000	53.8	215,657	54.5	1961
TEXAS						
Calavaras Creek(Pilot)	61,440	578,000	71.1	473,679	82.0	1958
Cow Bayou (Pilot)	65,920	1,096,000	67.3	723,143	66.0	1958
Cummins Creek	204,896	2,198,531	46.1	419,585	19.1	1967
Escondido Creek(Pilot)	51,200	770,000	64.6	700,412	91.0	1958
Green Creek (Pilot) ..	67,200	1,096,000	74.2	1,037,433	94.7	1958
Johnson's Draw	101,760	1,208,488	66.8	380,447	31.5	1962
Lower Brushy Creek ...	138,240	2,821,081	52.7	81	0	1967
Turkey Creek	18,880	68,048	19.3	38,208	56.1	1962
Upper Brushy Creek ...	191,360	2,856,314	58.1	4,491	0.2	1967

State and Watershed	Watershed Area (Acres)	Estimated Federal Cost	% of Cost to Total Cost	Total Cum. Fed. Obligation 6/30/57	% of Fed. Cost Obligation 6/30/57	Sched. Date of Completion
UTAH						
Green's Lake	6,235	293,370	88.7	233,380	79.6	1962
Mill Canyon Sage Flat.	15,296	161,615	90.2	117,124	72.5	1962
Pleasant Creek (Pilot)	10,880	384,000	85.0	286,086	74.5	1958
Santaquin Canyon(Pilot)	25,600	114,000	78.2	96,458	84.6	1958
VIRGINIA						
Back Creek	22,500	32,017	10.3	0	0	1962
East Fork Falling River (Pilot)	41,997	287,000	55.8	241,131	84.0	1958
WASHINGTON						
Chimacum Creek	24,965	178,124	51.1	0	0	1967
Mission Creek (Pilot).	54,400	348,000	98.3	249,413	71.7	1958
Saar Creek	11,233	71,265	33.7	33,648	18.9	1967
Spring Valley Creek (Pilot) 2/	54,400	4,293	-	4,293	100.0	1954
WEST VIRGINIA						
Salem Fork of Ten Mile Creek (Pilot)	5,760	341,000	77.2	273,780	80.3	1958
Upper Graves Creek ...	4,920	342,282	62.2	101,061	29.5	1962
WISCONSIN						
West Fork of Kickapoo (Pilot)	17,945	153,000	81.0	141,264	92.3	1958

1/ Project not authorized, no local sponsor.

2/ Terminated before completion at sponsor's request.

3/ Project installation complete on date shown- special evaluation of the effect of flood size storms will continue for a limited number of years.

Practical Problems Confront Watershed Project Sponsors

Sponsors of watershed projects among other things are required to provide all necessary easements and rights-of-way for structural measures to be constructed under each watershed work plan. Sponsors are often confronted with unexpected refusals to grant easements or with complex problems of land ownership and absentee owners requiring considerable time and expense to secure the needed approvals. Delay in clearing all necessary easements for a structure can disrupt the work schedules seriously.

For example, more than 200 easements are needed for the 42 floodwater retarding and other structures in the Big Wewoka Creek Watershed of Oklahoma. Field activities of Service employees have been suspended in the Chimacum Creek Watershed in Jefferson County, Washington until the sponsors secure the needed easements and rights-of-way and make the necessary financial arrangements. Work on the Ball Creek, New York Pilot Watersheds was terminated on December 21, 1956 with none of the planned structural work accomplished because the sponsors found it impossible to secure the needed easements. One property owner in the Clear Creek Watershed of Jackson County, Alabama has delayed the starting of work on the planned 4.6 miles of stream channel improvement by his refusal to grant or sell the necessary easement. The sponsors now propose to take legal steps to secure this easement.

The Payne County portion of the Long Branch Watershed in Oklahoma failed to be annexed to a conservancy district because of landowners opposition to conferring eminent domain rights. Securing easements and rights-of-way is the soil conservation district's biggest problem as project sponsors. State legislation specifically granting the power of eminent domain to watershed associations and soil conservation districts has been proposed or enacted in many States as a result of this common problem.

Soil Surveys and Farm Conservation Plans in Watersheds

Item	:Totals in Project Area :1957 (Actual :(Including "Conservation:With Watershed : Operations") Cumulative: Protection	
	: June 30, 1957	: Funds)
Soil surveys (Acres)	: 3,114,477	: 84,202
Total number cooperators ...	: 15,730	: 1,980
Basic conservation plans	:	:
Number	: 11,198	: 1,679
Acres	: 1,828,492	: 217,417
	:	:

Works of Improvement Installed in Watersheds

Measure	1957 Accomplishments (Actual): Total			
	Unit:	Protection	With Conserva-	tion Operation: Land to
		Funds	Funds	6/30/57
<u>Land Treatment Measures:</u>				
Contour farming	:Acre:	10,785	: 6,775	: 155,600
Cover cropping	:Acre:	9,059	: 19,606	: 84,118
Crop residue utilization,...	:Acre:	11,777	: 9,364	: 262,644
Stripcropping	:Acre:	3,684	: 1,492	: 47,725
Pasture planting	:Acre:	13,223	: 15,578	: 145,832
Revegetation	:Acre:	2,129	: 109	: 7,619
Range improvement	:Acre:	15,909	: 8,650	: 110,918
Terraces	:Mile:	766	: 562	: 12,180
Diversions	:Mile:	44	: 29	: 915
Pond construction	:No. :	182	: 228	: 4,191
Waterway development	:Acre:	694	: 316	: 11,042
Tree planting	:Acre:	277	: 525	: 11,219
Woodland protection	:Acre:	2,841	: 153	: 18,341
Wildlife area improvement ..	:Acre:	622	: 34	: 2,444
Erosion control structures .	:No. :	227	: 51	: 4,584
<u>Structural and Land</u>				
<u>Stabilization Measures:</u>				
Floodwater-retarding				
structures	(:No. :	69	: -	: 214
	(:AcFt:	37,458	: -	: 108,128
Stabilization and sediment				
control:				
(a) Structures	:No. :	91	: -	: 1,548
(b) Silt and debris basins	:No. :	41	: -	: 189
Subwatershed waterway				
improvement:				
(a) Outlet construction ..	:Mile:	22	: -	: 59
Stream channel improvement:				
(a) Channel stabilization.	:Mile:	8	: -	: 33
(b) Channel improvement ..	:Mile:	52	: -	: 130
Diversion ditches and dikes	:Mile:	3	: -	: 12
Stabilization of critical				
area:				
(a) Roadside erosion				
Control	:Mile:	42	: -	: 306
(b) Revegetation	:Acre:	4,149	: -	: 19,735

"P. L. 566" Projects Well Underway

The majority of the 42 watershed protection and flood prevention projects authorized for operations by June 30, 1957 under P. L. 566, as amended, are well underway. Local sponsoring organizations in most of these new projects are accepting their responsibilities and moving ahead rapidly. The sponsoring organizations are developing contracting procedures, receiving construction bids, securing necessary easements and letting contracts with little delay. In many watersheds land treatment work, already well advanced, has been accelerated even more through the organized efforts of the sponsors and other cooperating agencies and organizations. A few examples of progress in "P. L. 566" projects follow:

Hatch Valley Arroyos, New Mexico

The Hatch Valley Arroyos Watershed Project, sponsored by the Caballo Soil Conservation District covers 14,500 acres in Dona Ana County, New Mexico. Federal participation in the installation of the planned work was authorized in June, 1956. Three of the six planned floodwater detention structures were scheduled to be completed by August, 1957 and the other three during the spring of 1958. The completed project will protect some 1,500 acres of highly productive irrigated cropland, the community of Garfield, irrigation canals, and other property from flood runoff originating in the six small tributary watersheds. Land treatment measures in these small tributaries will be installed and maintained by the Bureau of Land Management. The entire project is estimated to cost \$230,000 and is scheduled for completion in 1961.

Silver Creek, South Dakota

The Silver Creek Watershed Project, covering 32 square miles in Minnehaha County, was approved for operations on March 12, 1957, as the first project authorized under Public Law 566 in South Dakota. The project is planned for completion in 1961 at a total cost of \$383,600, of which about \$122,850 will be non-Federal cost.

Of the 130 farmers in the watershed, 81 were cooperating with the Minnehaha Soil Conservation District which is sponsoring the watershed project. More than 45% of the planned land treatment measures are already applied, most significant of which are 38 of the needed 163 miles of terraces and 215 of the needed 285 acres of waterways development. Special emphasis is being given to the installation of the balance of the needed land treatment measures above the six planned floodwater retarding structures by priority cost-sharing assistance through the Agricultural Conservation Program, soil conservation district assistance, an intensive educational campaign and the cooperation of officials of the City of Sioux Falls. A recent six-inch rain storm demonstrated the effectiveness of conservation land treatment measures already on the land and created even more interest in pushing all phases of the watershed project ahead to completion.

The first floodwater retarding structure is scheduled to be installed during the 1958 fiscal year and the next two in 1959. More than 75% of the planned land treatment measures will be installed above these structures before construction is started. The 13.3 miles of channel improvement work planned will be constructed after the floodwater is controlled by the land treatment and structural work above the stream channels.

Harmony Creek Watershed, Iowa

The Harmony Creek Watershed Project covers 3,100 acres of privately-owned land in Harrison County, Iowa. This small tributary of the Boyer River has contributed tremendous volumes of sediment to the Missouri River system as a result of the sheet erosion and severe gullying of the deep loessial soils. Approved for operations on March 19, 1956, the project is scheduled for completion in the fiscal year 1959. All 24 of the farmers in the project area are cooperators with the Harrison County Soil Conservation District, and have already applied 85% of the needed conservation land treatment practices. Easements have been cleared for the six planned flood water retarding structures and all of them were either under construction or invitations to bid scheduled to be issued by October 1, 1957. Total cost of the project is now estimated at \$202,810 of which \$145,590 is the estimated Federal share.

Saar Creek Watershed, Washington

The Saar Creek Watershed Project, covering 17.5 square miles in Whatcom County, Washington, was approved for operations on February 14, 1957. Structural work planned consists of 13.3 miles of channel improvement in Saar Creek, Mud Slough, and the Sleasman Ditches. The total project cost is estimated to be \$348,600, of which \$178,124 is the Federal share. The Whatcom County Soil Conservation District and Drainage Improvement District No. 15 of the Whatcom County sponsor the project. The costs of the agricultural water management benefits for the drainage values of the channel work are shared by the local sponsors. All necessary easements and rights-of-way have been recorded and construction contracts were awarded in September, 1957. The plan contemplates that all construction will be completed by September, 1959.

Stony Brook Watershed, New Jersey

The 48-square-mile Stony Brook Watershed Project in Mercer and Hunterdon Counties, New Jersey was approved for operations in October, 1956. It is designed to reduce sedimentation of Carnegie Lake to a minimum by acceleration of flood prevention land treatment work and the construction of nine debris basins. Irrigation water will be stored in one structure. After considerable delay because of a State proposal for a water supply reservoir on the main stem of Stony Brook in the project area, consideration is now being given by the sponsors to revision of the work plan to include some provisions for storage of public water supplies in multiple-purpose structures.

Watershed Project Demonstrates
Substantial Benefits in Arkansas

An interim progress report of the Watershed Program Evaluation of the Six Mile Creek "Pilot" Watershed Project in Arkansas, covering the period 1954 through 1956, was published jointly by the Agricultural Research Service and Soil Conservation Service in July, 1957. Benefits of the six floodwater-retarding structures installed prior to spring storms of 1955 and the 14 floodwater-retarding structures operating during 1956 storms were reported showing an estimated reduction in flood damages of \$8,550. An estimated total benefit of \$25,005 would have resulted during these two years if the entire planned program had been completed and damages from floodwater and sediment would have been only about \$2,315. Benefits for values other than for flood prevention were not evaluated in the report but are substantial. They include increased farm returns from installation of land treatment measures and varied uses of water stored in the sediment pools. Heavy rains in the spring of 1957 were not included in the published evaluation but are estimated to have reduced flood damages by 50% with the planned program about 80% installed.

Oklahoma Project Passes Flood Tests

The Double Creek "Pilot" Watershed Project in Washington and Osage Counties, Oklahoma, was tested by six rain storms of unusual size and duration between April 19 and June 11, 1957. Each of the six storms would have caused severe flood damage had the project improvement measures not been installed. Before these storms about 70% of the needed land treatment measures had been applied to the land and all of the six planned floodwater-retarding structures were in place. There are forty landowners with about 2,250 acres of flood plain along Double Creek and its tributaries which have flooded frequently in the past. No flooding actually occurred from the storms of April 19, April 23, May 16 and May 21 although from 1,200 to 1,770 acres would have been flooded by similar storms prior to the project installations.

During the severe May 26 storm, with the soil already saturated following more than 8.4 inches of rain from four preceding storms, flooding was limited to about 1,000 acres. Without the installed program, flooding would have doubled and water would have been much deeper and caused even more damage. The greatest amount of downstream flooding occurred from the storm of June 11, when from 4.5 to 6.7 inches of rain fell, the soil was again pre-saturated and all structures were filled near capacity from previous storms. Detailed evaluation of the effect of the program in this storm was not available but under these extreme conditions flood reduction benefits were substantial. Although the extreme drought of the past four years have complicated the application of land treatment measures, local people are convinced that the grass management, terraces, farm ponds, and proper land use are effective in preventing erosion and reducing and holding back the damaging floodwaters. Properly managed native grass on one of the ranches took up water three times faster than where the grass lands had been abused.

West Virginia Watershed Project Nears Completion

More than two miles of channel improvement and seven of the eight planned floodwater-retarding structures have been completed in the 5,325 acre Salem Fork Watershed "Pilot" Project in Harrison County, West Virginia. The remaining flood prevention dam will be installed and needed land treatment work completed in 1958. Two intense rain storms in 1956 demonstrated the effectiveness of even a partially completed flood prevention program to the satisfaction of the local people. The multiple purpose reservoir in Dog Run, a tributary to Salem Fork, has provided plenty of good water to the residents of the City of Salem as well as providing effective floodwater detention values. Floods have damaged up to 220 acres of agricultural land and 60 acres of the city of Salem in the past.

Local enthusiasm for the project is high. Reforestation of the steep slopes is proceeding much faster than was planned. Conservation farm planning has been completed on 86 farms covering 5,125 acres. The final establishment of fencing for grazing control, contour farming, strip cropping, and other needed measures on these farms in the watershed will continue under the West Fork Soil Conservation District Program with priority consideration for Agricultural Conservation Program cost-sharing assistance after the project is closed in 1958.

Works of Improvement Reduce Flood Damages in Texas

About \$165,000 of floodwater and sediment damage was averted in the spring of 1957 alone by the land treatment measures and flood prevention works of improvement installed in the four "pilot" watershed projects in Texas. Although only 37 of the planned 44 floodwater-retarding structures were yet in place and the installation of land treatment conservation practices has been hampered by severe drought since the projects were started in 1953, flood damages were reduced from a probable \$603,000 (without the improvement measures) to estimated damages of 437,200 during the April and May, 1957 floods.

In the Escondido Creek "Pilot" Project with ten of the eleven planned floodwater dams and 47% of the planned land treatment measures installed, damages were reduced from a possible \$39,000 without the installation to about \$9,000 from the April 20-21, 1957 storm.

In the Calaveras Creek "Pilot" Watershed with eight of the nine planned floodwater retention dams and only 10% of the planned land treatment measures installed probable damages of \$36,000 without the project were reduced to \$14,000 from the storms of April 19 and April 29, 1957.

In the Green Creek "Pilot" Watershed with all 13 planned floodwater-retarding structures working and 51% of the planned land treatment measures installed, damages from the April 26, 1957 storm with rainfall from 3.7 to 4.8 inches were reduced from an estimated \$45,000 without the installations to about \$7,000 actual damage. Damage reductions in this project were about \$33,000 in 1955 and \$74,000 in 1956 when the planned structural measures were only partially installed.

Two storms in April, 1957 would probably have caused \$205,000 damages in the Cow Bayou Watershed "Pilot" Project before the project work was done. With six of the 11 planned floodwater-retarding dams in place, damages from these two storms were estimated to be \$175,175. Five inches of rain in April and 8.3 inches of rain again on May 11, 1957, centered above the completed dams and caused about \$232,000 in damages downstream. Had the land treatment and six floodwater dams not been installed, damages would probably have been \$277,000 or more -- a reduction of \$45,000. Rainfall amounts and intensities expected only once in 96 years were recorded at one rain gage stationed in the Cow Bayou project where only about half of the planned work was installed. Storms affecting the entire Cow Bayou Watershed similar to the one of May 11, 1957, are expected only once in about 64 years.

The installation of the remaining structural works of improvement planned in these four projects is scheduled by the end of 1958. Because of the continuous severe drouth, the land treatment phase of these watersheds will need to be continued beyond 1958 to complete the planned work.

LOANS AND RELATED EXPENSE

Revised Law Authorizes Loans

Under section 8 of Public Law 1018, 84th Congress, which amended Public Law 566 of the 83rd Congress, loans are authorized to be made to local organizations to defray the local share of the cost of watershed protection projects. Since this law requires that all of the costs allocated for flood prevention purposes except the costs of easements and rights-of-way be paid from Federal funds, most of the loans are expected to be made for the local share of the cost of multiple purpose projects. The Farmers Home Administration will make loans under the provisions of this Act for watershed projects which have been approved for the installation of works of improvement by the Administrator of the Service or by the appropriate committees of the Congress, if required. Project sponsors usually make local arrangements to secure funds needed for the costs of easements and rights-of-way and the costs of contract administration although some applications for loans have included funds for this purpose.

No loans will be made under this authority for the local costs of land treatment measures installed in the project primarily for watershed protection purposes even though the cost of these measures is usually a large share of the total cost of the project. These land treatment measures benefit the lands upon which they are applied and the costs are normally borne by the individual landowners rather than by the sponsoring organization. Federal cost-sharing is available for most of these measures through the Department's Agricultural Conservation Program and the Soil and Water Conservation Loan program.

No loans had been made under this authority by December 1, 1957, although more than twenty recent inquires have indicated the need for financial assistance. Applications for loans have been accepted ever since the loan program was authorized. Loan program procedures and regulations have been issued and preparations are being made to service loan applications in the field offices of the Farmers Home Administration.

Examples of Loan Applications Made

The Locust Island Meadow Company and the Thoroughfare Meadow Company, co-sponsors with the Salem-Cumberland Soil Conservation District for the Silver Lake-Locust Island Watershed Protection Project in New Jersey were early applicants for a loan of \$30,000 to finance their share of the project costs. This project was approved for operations on May 22, 1957 and the sponsors expect to complete the loan arrangements in time for construction of the planned structural works to be started early in 1958. The construction work will consist of two large dikes with sluiceways to provide both flood protection and drainage benefits. The total cost of the structural works is estimated at \$181,692. The local share of the estimated cost is \$32,775 including the cost of easements and rights-of-way and contract administration. The local share of the cost is allocated for the drainage benefits on the private lands of the members of the mutual, non-profit Meadow companies.

The Meggett-Hollywood Irrigation District of Charleston, South Carolina has already made application for a loan of about \$1,500,000 for the construction of an irrigation canal and appurtenant works in the proposed Toogoodoo Creek Watershed Protection project although the preliminary work plan is not yet complete. The planned canal will convey irrigation water for the production of vegetables and other high value crops.

The Tackett Creek Watershed Drainage District of Holmes County, Mississippi, a co-sponsor with the Holmes County Soil Conservation District proposes to borrow funds to defray the local share of the costs of the proposed Tackett Creek Watershed Project. The local cost share of the structural measures estimated at \$37,566. This includes the costs of easements and rights-of-way, contract administration and the local share of the cost of channel improvement. The 6.5 miles of channel work will benefit the local landowners in the Drainage District by providing drainage outlets.

SURVEYS AND INVESTIGATIONS OF WATER RESOURCES

Agency Participation

Funds for surveys and investigations of river basin areas for inter-agency program coordination purposes have been allocated to the cooperating agencies in the Department as follows:

Agency	: 1957 : Obligations	: 1958 : Estimate	: 1959 : Estimated
Soil Conservation Service	: \$458,943	: \$768,227	: \$837,400
Forest Service	: 135,782	: 73,200	: 41,000
Agricultural Research Service ..	: 143,007	: 158,573	: 121,600
Total	: 737,732	: 1,000,000	: 1,000,000

River Basin Activities

Section 6 of the Watershed Protection and Flood Prevention Act (P. L. 566, 83rd Congress), as amended, authorizes the Secretary of Agriculture to cooperate with other Federal, State, and local agencies in making investigations and surveys of the watersheds of rivers and other waterways as a basis for the development of coordinated programs. The Department is represented on the Inter-Agency Committee on Water Resources which has been established to facilitate the coordination of water and related land resource activities by the various member departments and agencies. Much of this work is done in the field. This requires that the Department maintain representation on various River Basin Inter-Agency Committees, which serve as points of contact between representatives of this Department and of other member departments and agencies and the States in these basin areas, to keep all concerned mutually informed of the activities of the member agencies. The Department in 1957 maintained such representation on Committees in the Arkansas-White-Red, Columbia, Missouri, Northeast and Pacific Southwest areas. In addition, surveys are being conducted in the following major river basin areas:

Lower Mississippi River and Tributaries Project:

The Department of Agriculture is cooperating with the Mississippi River Commission in its review of the Corps of Engineers' Lower Mississippi River and Tributaries Project. This project proposal is of substantial importance to this Department because it would have a major influence upon the agriculture of the area and is closely related to watershed improvements needed on watershed lands.

The Soil Conservation Service, Forest Service and Agricultural Research Service are participating in the work with funds made available under this item. Work plan parties have assembled data, made field investigations, analyzed data and gotten under way a flow of reports to the Mississippi River Commission on the estimated effects on agriculture of proposed flood control, major drainage and other improvements by the Corps of Engineers in various sub-areas. Nine reports on such sub-areas have been completed and others are in various stages of completion. The remaining sub-area reports are expected to be completed during the current fiscal year. A report summarizing the material developed and the probable over-all effect of the proposed improvements on the agriculture of the Lower Mississippi River area has been started during the current fiscal year.

Upper Colorado River Storage Project:

The Department is cooperating with the Department of Interior in a reappraisal of the direct agricultural benefits expected to be produced by the participating projects of the Colorado River Storage Project. Work is progressing in accordance with schedules established by the Bureau of Reclamation. The impacts of that Project upon lands and improvements administered by this Department and the relationship between features and appurtenances of the projects surveyed and the watersheds in which they are situated have also been considered. The Soil Conservation Service, Forest Service, and Agricultural Research Service are the primary Department agencies participating in the work under this item. The Land Grant Colleges are cooperating. Representatives of the Farmers Home Administration and the State Agricultural Stabilization Committees and of various concerned State agencies have provided valuable information and advice.

Reports have been completed and transmitted to the Secretary of the Interior and the Director, Bureau of the Budget, on the Vernal Unit of the Central Utah Project in Utah on the Paonia Project in Colorado. A field draft report has been completed on the Hammond Project in New Mexico. Field work has been nearly completed in connection with the reappraisal of the Seed-skadee Project in Wyoming. Some soil and other data have been obtained about the Emery County Project in Utah and the Smith Fork Project in Colorado.

Delaware River Basin:

The Department has responded to a request from the Corps of Engineers for cooperation in a survey and preparation of a Delaware River Basin Water Resources Survey Report based on a projection of at least 100 years. The Soil Conservation Service, Forest Service, and Agricultural Research Service are participating in the work. Most of the cost of this survey has been paid for by the Corps of Engineers.

Information is being developed on the present and estimated future water requirements for domestic, livestock, irrigation and other rural uses for water and how these requirements can be met; on the effect of land treatment and structural measures for flood prevention and watershed protection on high and low stream flows and on sedimentation; and on the impact of possible reservoir inundation upon agricultural production capacity and resources.

Kansas River Basin in Kansas:

The Department has agreed to cooperate with the Kansas State Water Resources Board in a survey of that portion of the Kansas River watershed that lies in the State of Kansas to develop information on economically feasible upstream water storage opportunities for agricultural and other local uses and for flood prevention purposes. This information will be useful to the State of Kansas in making over-all plans for use and development of its water resources. It will be useful to the Department in connection with providing assistance in the development of work plans for small watersheds under the provision of the Watershed Protection and Flood Prevention Act. A work plan for the survey has been developed and the survey is underway.

Cape Fear Watershed in North Carolina:

In response to a request from the U. S. Corps of Engineers, agreement has been reached to cooperate with the Corps of Engineers and the State of North Carolina in a survey of the Haw River (a tributary of the Cape Fear River) basin to develop information on economically feasible water storage opportunities there, together with sufficient examination of other tributaries of the Cape Fear River to ascertain the effects of possible projects and measures therein to determine their relationship with and impact on possible plans for the Haw River basin. Information developed will be used to show the needs for water resource development in the Haw River basin, various economically feasible development possibilities on the Haw, the degree and location of benefits to be provided by each, and estimates of the costs and benefits. A work plan for the survey has been developed and the survey is underway.

Columbia River Basin:

Information was developed by the Forest Service and made available to the Corps of Engineers on the relationships between various proposed reservoirs of the Corps of Engineers and the watersheds of streams upon which they would be located that lie within the national forests and upon the effect that the reservoirs would have upon the use and management of the affected national forests and other forested watershed lands. Similar information relating to a few additional proposed reservoirs is being developed this year.

Yazoo-Mississippi River Basin:

In response to a request from the Board of Water Commissioners, State of Mississippi, agreement has been reached to cooperate with that Board in a survey of the Yazoo-Mississippi River basin to develop and obtain through surveys and investigations necessary information to be used by the Soil Conservation Service in coordinating its programs with soil conservation

districts and other local organizations, agencies of the Mississippi State government, and other Federal agencies, and to be used by the Board of Water Commissioners to effectively administer and assist in planning the physical aspects of water use and management in the Yazoo-Mississippi River basin. A work plan is in process of development. Work is expected to begin about the middle of the current fiscal year and continue for about three years.

Other Cooperative Surveys:

The Department is cooperating with the Chicago, Illinois, Division Office of the Corps of Engineers in surveys on various streams in that Division area to develop information for use by the Soil Conservation Service in providing information to soil conservation districts and to the Corps of Engineers on the effects of Corps of Engineers' major drainage projects on land use and management. A request has been received from the Corps of Engineers for cooperation in a survey of the portion of the Des Moines River Watershed in Iowa above the Red Rock Reservoir. There are also prospects of requests for cooperation in surveys and investigations of the watersheds of the Potomac and Susquehanna Rivers.

(c) Flood Prevention

Appropriation Act, 1958 and base for 1959	\$13,220,000
Amended Budget Estimate, 1959 (including \$4,780,000 proposed in H. Doc. 351)	18,000,000
Increase	<u>+4,780,000</u>

PROJECT STATEMENT

Project	1957	1958 (estimated)	Increase	1959 Amended Estimate
1. Works of improvement:	\$12,157,844 ^{a/}	\$13,220,000	+\$4,780,000(1)	\$18,000,000
1956 appropriation :				
available in 1957 :	-1,740,205	- -	- -	- -
1957 appropriation :				
available in 1958 :	1,582,697	- -	- -	- -
Recovery of prior year obligations :	-336	- -	- -	- -
Total appropriation or estimate	12,000,000	13,220,000	+4,780,000	18,000,000

^{a/} In addition, \$1,582,697 is available from prior-year balances.

INCREASE

(1) An increase of \$4,780,000 to accelerate the installation of works of improvement in watersheds authorized by the Flood Control Act of 1944, as amended. The work is far behind the original schedule in 10 of the 11 watersheds and the local people are prepared to do their share at an accelerated rate. Work has progressed in portions of all of the watersheds to the point that benefits have convinced the local people of the value of the program. For example, completed work in the Trinity Watershed of Oklahoma is estimated to have prevented \$1,080,000 in damages to crops, pastures, livestock, and improvements and to have trapped more than 5,000 acre feet of sediment during the spectacular rain storms in the spring of 1957, alone. Local people in this and several other watersheds already have available land easements and rights-of-way, which they are responsible for providing. Designs and specifications for additional structural improvements are also available so that the award of construction contracts to local contractors could proceed early in the 1959 fiscal year. Construction work would be accelerated to the fullest extent possible in areas of unemployment.

The following table shows the distribution of funds to watersheds for the fiscal years 1957 and 1958 and proposed for 1959 in the budget.

Distribution of Funds to Watersheds

Watershed	1957 Obligations:	1958 Availability				1959 Amended Budget Estimates
		Total Available	Balances carried forward from 1957	From Dis-continued activities:	Works of Improvement	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Buffalo Creek, New York	\$324,152:	\$383,683:	- -	\$47,683:	\$336,000:	\$336,000
Colorado (Middle), Texas	1,376,964:	1,573,257:	- -	45,257:	1,528,000:	2,000,000
Cosca, Ga., Tenn.	535,597:	608,509:	- -	37,509:	571,000:	787,000
Little Sioux, Iowa, Minn.	800,026:	852,586:	\$336:1/	186,250:	666,000:	912,000
Little Tallahatchie, Miss.	938,788:	997,801:	- -	180,801:	817,000:	936,000
Los Angeles, California	673,227:	1,512,894:	- -	541,894:	971,000:	1,061,000
Potomac, Md., Pa., Va., and W. Va.	441,054:	788,757:	- -	161,757:	627,000:	916,000
Santa Ynez, California	151,713:	176,794:	- -	13,794:	163,000:	401,000
Trinity, Texas	2,411,316:	2,794,221:	- -	111,221:	2,683,000:	3,675,000
Washita, Oklahoma	2,340,352:	2,843,600:	- -	157,600:	2,686,000:	4,335,000
Yazoo, Mississippi	2,008,545:	1,970,595:	- -	98,595:	1,872,000:	2,341,000
Emergency Measures	156,110:	300,000:	- -	- -	300,000:	300,000
Total	12,157,844:	14,802,697:	336:	1,582,361:	13,220,000:	18,000,000

1/ Includes \$143,890 of unobligated funds for emergency measures which has been allotted to this watershed for obligation in 1958.

STATUS OF PROGRAM

Current Activities:

The Flood Control Acts provide (1) for control of floods by main-stream control works for which the Department of the Army is responsible and (2) for the reduction of floodwater, sediment, and erosion damages and the prevention of floods by installation of watershed improvement measures for which the Department of Agriculture is responsible. The work of this Department under this item is carried on in the eleven watersheds authorized by the Flood Control Act of 1944. It consists of:

- (a) the preparation of detailed subwatershed or functional work plans which specify the kind of improvements to be installed for flood prevention, their location, and the work schedule,
- (b) the installation of works of improvement, such as diversions, dikes, gully-stabilizing and water retarding structures, debris and desilting basins, floodways, stream-channel improvement, fire protection and woodland improvement measures, etc., to reduce flood, erosion, and sediment damage and retard runoff and control its movement into the main streams, and
- (c) the acceleration of land treatment measures to prevent erosion and protect the structural works of improvement from flood and sediment damage. Proposed improvements by the Department are correlated with and designed to protect mainstream work by the Corps of Engineers, the Bureau of Reclamation, and others, in addition to providing protection to the watershed lands and property above the mainstream works.

The proper and continued maintenance of installed measures is the key to the long-time effectiveness of the watershed improvement programs. Land-owners and operators generally maintain conservation and other measures which benefit primarily the lands upon which they are installed. Local units of Government have the responsibility to maintain the measures which provide primarily off-site benefits.

Program Assignments

The Soil Conservation Service has general responsibility for administration of the work of the Department authorized under the Flood Control Acts. The Soil Conservation Service and the Forest Service carry out the planning and installation of flood prevention works of improvement and land treatment measures in the authorized watersheds. The Forest Service activities are concerned with (a) all national forests and other lands in the authorized watershed that are administered by the Forest Service, (b) all range land in or adjacent to national forests and used in conjunction with such forests under formal agreement with the landowner, and (c) certain specialized technical assistance on other forest lands within the watersheds. The Soil Conservation Service activities are concerned with all other private and public lands in the watersheds.

Examples of Recent Progress

Allocation of Funds for Works of Improvement

Funds available for planning and installation of flood prevention works of improvement are allocated between the Soil Conservation Service and the Forest Service as follows:

Agency	1957 Obligations	1958 Funds Available	1959 Amended Estimate
Soil Conservation Service ..	\$10,641,133	\$12,730,965	\$15,605,000
Forest Service	1,360,601	1,771,732	2,095,000
Emergency Measures	156,110	300,000	300,000
Total	12,157,844	14,802,697	18,000,000

The following table provides a breakdown by watersheds of the allocations for 1958 and 1959 shown above:

Watershed	1958 Funds Available Agency Distribution			1959 Amended Budget Estimate Agency Distribution		
	SCS	FS	TOTAL	SCS	FS	TOTAL
1. Buffalo Creek, N. Y.	\$377,857:	\$5,826:	\$383,683:	\$335,700:	\$300:	\$336,000
2. Colorado (Mid- dle), Texas	1,573,257:	- - :	1,573,257:	2,000,000:	- - :	2,000,000
3. Coosa, Ga., Tenn.	555,899:	52,610:	608,509:	755,100:	31,900:	787,000
4. Little Sioux, Iowa, Minn.	852,586:	- - :	852,586:	912,000:	- - :	912,000
5. Little Talla- hatchie, Miss.	795,721:	202,080:	997,801:	706,000:	230,000:	936,000
6. Los Angeles, California	800,261:	712,633:	1,512,894:	88,200:	972,800:	1,061,000
7. Potomac, Md., Pa., Va., W.Va.	748,145:	40,612:	788,757:	871,000:	45,000:	916,000
8. Santa Ynez, California	13,677:	163,117:	176,794:	236,000:	165,000:	401,000
9. Trinity, Texas	2,794,221:	- - :	2,794,221:	3,675,000:	- - :	3,675,000
10. Washita, Okla.	2,843,600:	- - :	2,843,600:	4,335,000:	- - :	4,335,000
11. Yazoo, Miss.	1,375,741:	594,854:	1,970,595:	1,691,000:	650,000:	2,341,000
12. Emergencies a/	300,000:	- - :	300,000:	300,000:	- - :	300,000
Total	13,030,965:	1,771,732:	14,802,697:	15,905,000:	2,095,000:	18,000,000

a/ Under authority of Section 216 of the Flood Control Act of 1950, not to exceed \$300,000 may be expended each fiscal year for emergency measures.

when a fire, flood or any other natural element or force has caused a sudden impairment of the watershed. This amount is not included in the amounts proposed for distribution to the individual watersheds. However, any balances not needed for emergency measures as provided by the act are distributed later in the year to those watersheds where the greatest need exists and where the local people have provided easements and rights-of-way to permit installation of additional works of improvement.

Watershed Work Plans and Improvement Measures

The Department, in cooperation with soil conservation districts, watershed organizations and other local, private, and public agencies, is planning and installing watershed improvement measures in all eleven of the authorized watersheds. In order to provide consistency between the flood prevention program and the watershed protection program (P.L. 566, 83rd Congress, as amended) of the Department, which have similar objectives, the planning criteria, economic justifications, local sponsorship requirements, cost-sharing, structural limitations and other procedures and policies used in the flood prevention program have been adjusted to generally parallel those of the watershed protection program insofar as possible within the provisions of the Flood Control Acts.

As of June 30, 1957 work plans had been developed for 15,929,827 acres or about 52.9 percent of the 30,102,774 acres in the authorized portion of the watersheds. During 1957 work plans were revised and developed for 22 subwatersheds in the eleven authorized watersheds.

The following table lists some of the major watershed works of improvement which were installed cooperatively by the Department agencies and local co-operators in 1957, and those planned to be installed in 1958 and 1959:

Type of Improvement	Unit	On the Land: 6/30/57	1957 Actual	1958 Estimate	1959 Estimate
Floodwater retarding structures	Number	455	73	181	337
Stabilization and sediment control structures:					
(a) Structures	Number	6,506	1,319	118	307
(b) Debris and desilting basins	Number	244	---	1,100	1,300
(c) Detention Terraces	Miles	479	47	136	120
Subwatershed waterway improvement	Miles	11	---	141	63
Stream channel improvement	Mile	1,111	141	221	340
Diversion ditches and dikes	Mile	756	126	323	254

Type of Improvement	Unit	On the Land: 6/30/57	1957 Actual	1958 Estimate	1959 Estimate
6. Floodways (Channel excavation).....	Mile	19	-----	0.3	-----
7. Stabilization of critical runoff and sediment producing areas:					
(a) Roadside erosion control	Mile	2,544	467	247	354
(b) Revegetation	Acres	219,375	37,515	8,990	7,484
8. Fire Protection:					
(a) Fire control trails and breaks	Miles	565.1	103.9	36	26
(b) Structures	Number	97	3	10	12
(c) Heliports and helispots	Number	301	111	60	40
(d) Mobile equipment ..	Number	99	-----	10	10
9. Communication facilities					
(a) Permanent radio installation ...	Number	370	32	7	6
(b) Telephone lines ..	Miles	262	32	15	15

Buffalo Creek Watershed, New York

Total Estimated Federal cost\$4,671,594
Total Obligations through June 30, 1957 2,551,302

This watershed is located in the extreme western part of the state and covers an area of 437 square miles, 21 square miles of which lies within the City of Buffalo. The watershed is drained by three sub-watersheds; the Buffalo Creek sub-watershed with 172 square miles; the Cayuga Creek sub-watershed with 125 square miles and the Cazenovia Creek sub-watershed of 140 square miles. Work is carried out in the watershed in cooperation with Soil Conservation Districts in Erie and Wyoming Counties. Land treatment measures are scheduled for completion in 1975 and structural measures in 1965.

The application of conservation practices on the uplands has been in progress since 1946. There are 1325 landowners who have cooperative agreements with the Erie and Wyoming Soil Conservation Districts. These agreements include 109,561 acres of the land in the watershed. Practices applied include 3735 acres of contour farming, 6556 acres of perennial hay, 9035 acres planted to trees, 20752 acres of woodland protected, 350 farm ponds and 4000 acres of strip-cropping.

Structural measures planned for installation consist mainly of stream channel improvement. Work on structural practices started in the fall of 1949. Thirty-three miles of stream channel has been stablized. Approximately 25 miles of stream channel work remains to be completed. The stream channel work has reduced inundation of valuable farm land and damage to buildings, roads, brdges and public utility lines. It is estimated that approximately 50 acres of bottomland has been saved from destruction from streambank erosion. Thousands of cubic yards of sediment has been prevented from being deposited in Buffalo Harbor. The dredging of the sediment is a costly operation. For example, the Corps of Engineers removed 140,000 yards of sediment from the harbor this year at a unit cost of \$1.248 per cubic yard. Although it is difficult to determine the total sediment deposited in the harbor each year since annual maintenance dredging does not cover the entire harbor area, a study of dredging figures show a downward trend in maintenance dredging since 1952.

Easements and rights-of-way for installation of structural measures are provided by the Joint Board of the Erie and Wyoming Soil Conservation Districts. Through June 30, 1957, 237 easements had been secured and it is estimated that an additional 200 will be required for completion of the project. The Joint Board has expended over \$12,000 on the maintenance of the streambank work.

Construction work is under way on a channel improvement contract amounting to \$119,525 and two additional contracts are planned for awards in the 1958 fiscal year. Designs are in progress for flood prevention work on Tannery Brook and additional streambank protection work in the Cazenovia sub-watershed. Structural measures on the Buffalo Creek sub-watershed should be completed by force account work in 1958.

Middle Colorado River Watershed, Texas

Total Estimated Federal Cost	\$29,870,697
Total Obligations through June 30, 1957	4,024,699

This watershed comprises 4,408,000 acres in the middle section of the watershed of the Colorado River of Texas. Practically all the land within the watershed is privately owned.

This watershed has been divided for planning purposes into 14 sub-watersheds. Flood prevention work plans have been developed for seven of these which cover 2,652,630 acres. Although this entire watershed has been plagued by drought during the past 7 years, good progress is being made in the application of land treatment practices. The following land treatment practices were on the land July 1, 1957:

Cover Cropping	58,612 Acres
Range Seeding	12,686 Acres
Pasture Seeding	9,905 Acres
Terracing	12,427 Miles
Diversion Construction	969 Miles
Pond Construction	7,160 Each
Waterway Development	1,111 Acres

The local people have secured all needed easements, rights-of-way, and road and utility changes for 72 floodwater retarding structures in 4 sub-watersheds. By June 30, 1957, 36 floodwater retarding structures, 2 floodways and 4 floodwater diversions had been completed. During the fiscal year 1958, 18 floodwater retarding structures will be constructed in Brady Creek, Lower San Saba River and Clear Creek subwatersheds. There will remain to be constructed, after the fiscal year 1958, 9 floodwater retarding structures in the Brady Creek subwatershed, 7 in Lower San Saba River, and 2 in Clear Creek subwatershed. Most of the easements have been secured on the 10 floodwater retarding structures in Mukewater Creek subwatershed and the 8 structures in the upper construction unit of Jim Ned Creek subwatershed.

Coosa River Watershed, Georgia and Tennessee

Total Estimated Federal Cost \$8,147,053
Total Obligations through June 30, 1957 1,980,908

This project covers 2,092 square miles, of which 99 percent is located in 12 counties in northwest Georgia, and 1 percent is located in Polk County, Tennessee. Approximately 16 percent of the project is publicly owned, with 190,000 acres in national forest land, 2,500 acres in National battle-field sites, and 38,239 acres in and adjacent to Allatoona Flood Control Reservoir constructed by the U. S. Corps of Engineers. It is sponsored by the Atlanta, Coosa River, Limestone Valley, and Upper Chattahoochee River Soil Conservation Districts.

The watershed has been subdivided into 17 sub-watersheds, and detailed work plans have been completed on five of these. Detailed planning is continuing on the farm and woodlands of additional sub-watersheds.

The land treatment work estimated to be needed in the watershed at an estimated total cost to farmer cooperators of \$5,605,000, is well started on the 219,000 acres of cropland, 983,000 acres of woodland, and 30,000 acres of pasture. There are 1,769 district cooperators in the five sub-watersheds, who have completed work plans, and 1,368 cooperators have basic plans covering 129,352 acres. Some of the main accomplishments in the way of land treatment in the watershed are: 131 miles of road rights-of-way treated with grasses and legumes; 21,136 acres of pasture planted; 19,943 acres of perennial grasses planted on eroding critical areas; 1,203 acres of trees planted; and 249 farm ponds constructed.

Easements and rights-of-way that have been recorded for the 30 floodwater-retarding structures constructed or under contract are valued at \$51,325. Structural measures planned, and estimated total Federal costs, are: 165 floodwater-retarding structures, at \$3,103,000; and 560 miles of channel improvement, at \$523,000. The flood-retarding structures have a benefit-cost ratio of 2.12 to 1. Eighteen flood-retarding structures were completed in prior years, and five were constructed in the 1957 fiscal year. Seven

additional structures are under contract. Surveys and foundation drillings are in progress or completed on 12 additional floodwater-retarding structures expected to be contracted in fiscal year 1958. Of the 560 miles of stream channel improvement planned, 26 miles have been completed.

One of the floodwater-retarding structures in Settingdown Creek subwatershed was constructed with a county roadway across the top of the dam. The Forsyth County Commissioners paid the additional cost for this feature included in construction of the dam.

Little Sioux Watershed, Iowa, and Minnesota

Total Estimated Federal Cost	\$25,568,552
Total Obligations through June 30, 1957	8,088,644

The total area of this watershed is approximately 4,500 square miles or 2,880,000 acres. It is 135 miles long and at its greatest width is 50 miles. The lower or south two-thirds of the watershed uplands comprising 1,714,000 acres constitutes the area authorized for flood prevention assistance. The soils are of loessal origin where wind-blown materials are commonly 25 to 50 feet in depth or more. Sheet and gully erosion are severe problems in this area. Gullies commonly are 20 to 40 feet deep and have developed to over 50 feet in depth. Many of the most fertile areas in the watershed, the valley floor section of the small tributaries, are being rapidly destroyed for cultivation by severe gully erosion. More than 300 square miles of the larger valley-bottom croplands are frequently damaged by sediment deposits and flooding from these smaller tributaries.

Twelve soil conservation districts make up the Little Sioux Works Committee which provides overall guidance and which established "priorities for assistance" under the program.

Thirty-two subwatershed work plans covering 55,500 acres have been developed. Principle works installed under those work plans are 126 floodwater-retarding structures, 260 grade stabilization and sediment control structures, 55 miles of channel improvement, 12 miles of diversions, 14 miles of dikes, 9 miles of floodway construction, and 478 miles of detention-type basin terraces. At present, 295,000 acres of row crops in the watershed are farmed on the contour, 3,300 acres of waterways have been developed, and 2,300 miles of cropland terraces have been installed.

In June 1957, the parts of the watershed were subjected to high intensity of rainfall. Approximately 8 inches of rain fell in a short time on the Anthon subwatershed. Flood prevention measures in this watershed functioned extremely well. According to local people, the drainage ditch flowed no more than 60 to 70 percent full and the town suffered practically no damage. It was estimated that \$50,000 damage was prevented by the subwatershed treatment installed before this storm occurred.

Basin terraces were installed in the Little Sioux watershed on a trial basis four years ago. They are designed to collect and hold the runoff slopes too steep to be cropped. A protective cover of grass or trees is planted on the steep slopes and basin terraces. The control of runoff from the steep slopes by these terraces permits the better land down the slope to be used for row crops under conservation farming systems. Without the basin terraces the entire slope would have to be planted to permanent vegetative cover to protect it from erosion. Basin terraces have performed very well during the high intensity rainstorms of the past four years and their use is spreading throughout the State of Iowa.

Little Tallahatchie River Watershed, Mississippi

Total Estimated Federal Cost	\$14,297,289
Total Obligations through June 30, 1957	4,765,901

This project covers 1506 square miles of which 98,250 acres are in the Sardis Reservoir purchase area and 99,000 acres in the Holly Springs National Forest. The remainder of the watershed is owned by private interests, mostly small farm units ranging in size from 40 to 160 acres each. The estimated total cost of installing flood prevention and land treatment measures is \$15,052,700. It is estimated that local interests will provide about 50 percent of the cost of installing these measures. The allocation of Federal and non-Federal costs, however, will vary by type of measures.

Planned land treatment work, estimated to cost the local farmers \$5,536,000 is well under way. Over 5,600 acres of trees have been planted on the Federal lands most of which are now considered to be in good condition generally. A good fire prevention program supported by the State and County is in effect over the entire watershed protecting approximately 400,000 acres of woodland. Rapid progress is being made toward converting 76,439 acres of idle land to pastures, woodland, and cropland. Basic conservation plans have been prepared in cooperation with over 4,000 farmers, more than two-thirds of the operating units in the watershed. One of the most significant items of progress is the amount of tree planting on critical lands. The ACP has extended priority cost-sharing assistance in the watershed, particularly for tree planting. To date approximately 36,000 acres have been planted to trees. On less critical lands, about 30,000 acres have been planted to grasses and legumes. Among the other more significant works of improvement installed are 704 stabilization and sediment control structures, 156 miles of diversion ditches, 125 miles of roadbank erosion control, and 244.1 miles of channel improvement.

Progress in construction of floodwater-retarding structures has been slow. Within the past year the local people have shown more and more interest in the structural program and are now more willing to provide the necessary easements and rights-of-way for these structures than ever before. Contracts for six floodwater-retarding structures were awarded last spring. Twelve of these dams are scheduled for construction during the fiscal year 1958, a rate which is planned to be maintained for twelve years in order to reach the goal of 150 and to complete the entire project by 1968.

Los Angeles River Watershed, California

Total Estimated Federal Cost	\$19,350,496
Total Obligations through June 30, 1957	8,273,761

This watershed covers a total of 536,909 acres and is located almost entirely within Los Angeles County. Forty-three percent of the area is rough, broken, foothill and mountain land in the upper reaches of the watershed and the remaining fifty-seven percent is benchland and valley, of which, at the time the project was authorized, about twenty-two percent or 116,065 acres were devoted to agriculture and grazing use. Since the authorization of the project there has been a material increase in urban development of the area with a corresponding decrease in land available for agricultural use.

Rainfall is usually of short duration and relatively high intensity which cause high flash flood flows. Watershed erosion is extremely high and the sediment from the steep watershed canyon is deposited on the relatively flat alluvial slopes of the valley floor. The channel across the valley to the Los Angeles River is of inadequate size, for normal winter runoff.

Under the basic Memorandum of Understanding between the Department of Agriculture and the local agencies directly concerned, the Secretary of Agriculture, through the Soil Conservation Service, agreed to assist the Los Angeles County Flood Control District in the prosecution of flood control works of improvement in minor channels at locations for which no treatment was proposed by either the Corps of Engineers or the flood control district, and in the prosecution of farm land improvement and treatment on approximately 100,000 acres of agricultural land. Through the Forest Service, the Secretary of Agriculture agreed to assist local agencies with fire control, cover improvement, road improvement, and mountain channel improvement measures on private lands and on the 145,000 acres of the Los Angeles National Forest in the mountainous area of the watershed.

The San Fernando Valley Soil Conservation District coordinates the cooperative flood control program on the Los Angeles River Watershed. The Soil Conservation District Directors take leadership in determining priority of work, securing cooperation of the landowners, and in coordinating and scheduling work consistent with the rapidly changing land use.

The local cooperating agencies furnish all rights-of-way, arrange for and bear the entire cost of all utility relocations and replacement of existing improvements, operate and maintain the completed works, and pay fifty percent of the cost of construction of works of improvement on non-Federal lands.

The Cooks Canyon project on the Los Angeles National Forest was completed during the year. This consisted of nine combination debris and channel stabilization structures of a new prefabricated concrete crib type. Half of the cost of eight of them on private land was paid by the Flood Control

District. Tested by two 3" rainfall storms on the area of the Dunsmore fire the upper structures retained all of the debris and no water or debris reached the large debris basin at the mouth of the canyon.

The Forest Service also made test plantings of new exotic species from Africa in the effort to find more effective and fire resistant vegetative cover for critical areas of the mountain lands. Fire prevention and control measures were continued, using 4,485 man-days of fire fighting financed with project funds.

Work completed to date includes 14.27 miles of streambank and channel stabilization, 20.94 miles of channel capacity improvement, 3.61 miles of sub-watershed waterway improvement, 7 stabilizing and sediment control structures, and one desilting basin. Planning and installation of farm land treatment measures has been essentially completed on that portion of the watershed within the San Fernando Valley Soil Conservation District.

Detailed contract plans and specifications for 2.31 miles of channel improvement, including bridge replacements, have recently been completed. Detailed plans and specifications are being currently prepared for the improvement of 2.75 miles of channel in two separate subwatersheds and contracts for the construction of these improvements will be awarded in the fiscal year 1958. A contract for professional engineering services is currently under way for preliminary designs and cost estimates for the Santa Susana Creek subwatershed.

All local cooperating agencies are extremely well organized and are efficiently meeting their obligations relative to rights-of-way, contributed funds, and operation and maintenance.

Potomac River Watershed, Md., Pa., Va., & W. Va.

Total Estimated Federal Cost	\$15,510,070
Total Obligations through June 30, 1957	1,637,652

This project includes 4,205,400 acres of the Potomac River watershed above Hancock, Maryland in the States of Maryland, Pennsylvania, Virginia and West Virginia. Subwatershed work plans have been prepared and the installation of works of improvement is underway in the South River subwatershed in Virginia and the New Creek-Whites Run and the Warm Springs Run subwatersheds of West Virginia, which comprise 200,172 acres of the total project area. The preparation of similar work plans is underway on the North River subwatershed in Virginia and the George's Creek subwatershed in Maryland.

About 53% of the area for which work plans have been prepared is woodland (116,846 acres) and 38% (75,322 acres) is used for pasture and cropland. All land in the watershed is privately owned except 31,700 acres of national forest and 16,600 acres of national park areas. Land treatment measures are

being planned and applied on farmlands in cooperation with the Shenandoah Valley Soil Conservation District in Virginia and the Potomac Valley and Eastern Panhandle Soil Conservation District in West Virginia. These districts also sponsor the flood prevention programs in the subwatersheds, coordinate the work of the local people and organizations, secure easements for and maintain the completed structural measures.

The planning and establishment of needed land treatment measures on their farms by the local landowners is not progressing as fast as was planned although their acceptance of conservation measures is improving.

Thirty-seven floodwater-retarding structures are planned in the three subwatersheds. Ten of these have been installed, three were under construction on July 1, 1957, and nine more scheduled for construction during the current fiscal year. About 2.4 miles of streambank has been stabilized, 3.5 miles of channel improved and 5.4 miles of roadside erosion control completed. National forest and national park lands are receiving protection and management under their regular appropriations.

Santa Ynez River Watershed, California

Total Estimated Federal Cost	\$3,791,276
Total Obligations through June 30, 1957	1,786,075

The Santa Ynez River Flood Prevention Project, sponsored by the Lompac Soil Conservation District, in south-coastal California, covers 900 square miles of which 88.7 square miles are contained in subwatersheds on which work plans have been developed. Essentially all of these lands lie in the westerly portion of the Santa Ynez basin and are privately owned. Flood flows from deeply entrenched canyons debouch onto highly fertile intensively cultivated lands used for vegetable and flower seed production. With each flood producing storm sheet and gully erosion take place on lands outside the flood plains. Structural measures are designed to prevent degradation of entrenched gullies and to confine flood water to improved channels across the flood plains. Land treatment measures are applied to prevent sheet erosion and to improve soil fertility. Fire prevention measures are planned to maintain ground cover in the headwater portion of the watershed.

Planned land treatment measures estimated to cost local farmers \$155,521 are well advanced on the 14,200 acres of cropland and 42,500 acres of range land. Of the 267 farmers in the subwatersheds 181 are district cooperators with 169 basic farm plans prepared. More than 92% of the land treatment measures have been applied, most significant of which are 33 miles of diversion terraces, 386 drop spillways, 6,120 acres of cover cropping, 36,880 acres of rotation grazing and 124 farm ponds constructed.

The sponsors, townspeople, and farmers are well organized and enthusiastic. Accomplishments of the Lompac Soil Conservation District Board of Directors have been outstanding. They have negotiated 32 contracts for flood prevention works of improvement for which they were reimbursed by the Federal Government. Land treatment work has been given highest priority for ACP assistance and will be installed well ahead of schedule. The Forest Service has constructed fire trails and other works to make large tracts of previously inaccessible areas accessible for fire suppression on the 221,000

acres of national forest lands located in the headwaters of the Santa Ynez River basin. Pre-planning for fire suppression was completed on 59,100 acres and has high priority for completion.

Easements and rights-of-way valued at \$97,365 have been recorded for 46 landowners. These cover all of the flood prevention works installed on private lands to date which include 107 stabilization and sediment control structures, 3 silt and debris basins, 3.12 miles of outlet construction, 5.8 miles of channel stabilization, 9.72 miles of diversion waterways, 3.03 miles of floodways, re-vegetation and stabilization of 126.6 acres of critical areas as well as moving 54,719 cubic yards of earth for levees and dikes. The construction of flood prevention measures has changed the economy of the area by permitting the growing of winter crops of commercial flower seed, vegetables and orchards.

Field surveys have been completed, preparatory to work plan preparation in the fiscal year 1958, for one floodwater-retarding structure, three sediment and debris basins, and approximately 1.0 miles of conduit with appurtenances for storm water diversion in the Cemetery Canyon subwatershed. It is anticipated that designs, specifications, and land easements will be available for construction within this subwatershed in the fiscal year 1959 with works of improvement following in successive years on the remaining subwatersheds.

Trinity River Watershed, Texas

Total Estimated Federal Cost	\$80,274,576
Total Obligations through June 30, 1957	14,518,668

This watershed comprises the upper 8,272,260 acres of the Trinity River watershed. Practically all the land in the watershed is privately owned. The watershed has been divided for work plan development into 54 subwatersheds. Flood prevention work plans have been developed on 31 of these subwatersheds, covering 5,953,215 acres. However, due to changes in policies and criteria and experience gained in the flood prevention program, it has been found that 17 of the 31 planned subwatersheds will require varying amounts of replanning. These 17 subwatersheds include 3,059,190 acres.

In spite of the drought of the past 7 years, good progress has been made in the application of planned land treatment work. Over one-half of the entire land area is covered by cooperative agreements with the 21 soil conservation districts within the watershed. On July 1, 1957, the following amounts of land treatment practices had been applied:

Cover Cropping	931,465 Acres
Range Seeding	26,726 Acres
Pasture Seeding	593,829 Acres
Terracing	17,465 Miles
Diversion Construction	1,235 Miles
Pond Construction	21,560 Each
Waterway Development	28,970 Acres

One hundred forty-seven floodwater retarding structures were completed or under construction on June 30, 1957, together with 1.6 miles of floodways, 28.8 miles of floodwater diversions and 79 grade stabilization structures. All the planned structural measures have been completed in six subwatersheds.

Forty-eight floodwater retarding structures and one grade stabilization structure are planned for construction during the fiscal year 1958 in eight subwatersheds. These subwatersheds are East Fork above Lavon, Pin Oak Creek, Elm Fork, Sister Grove Creek, Clear Fork, Big Sandy Creek, Chambers Creek and Upper East Fork Laterals.

The local people within the Trinity River watershed have secured all needed easements, rights-of-way, and road and utility changes on all planned structures in 14 construction units. There are 129 floodwater-retarding structures within these construction units, the estimated Federal cost of which is \$6,476,892. In addition to the 14 construction units with all needed easements secured, there are 8 other units with most of the easements expected to be secured within the fiscal year 1958. There are 98 sites planned within these 8 construction units, the estimated Federal cost of which is \$4,789,914.

During the past spring, the structural works of improvement within the Trinity River watershed were subjected to storms of unprecedented intensity and amount. During the period April 19 to June 3, as high as 42 inches of rainfall was recorded in some areas, with 30 to 35 inches being average. Only a comparatively small amount of damage was done to the structures, and they all functioned as planned. It is conservatively estimated that the 138 floodwater retarding structures completed at the time the storm began prevented over one million dollars in damage.

Washita River Watershed, Oklahoma

Total Estimated Federal Cost	\$47,642,429
Total Obligation through June 30, 1957	12,917,589

This watershed consists of 7,961 square miles is divided into 64 subwatersheds for work plan development and operation. The program consists of reduction of floodwater and sediment damages through a coordinated program of land treatment and structural measures. In addition, storage for irrigation and municipal water supplies are included where local people wish to provide the necessary funds for the added cost.

The local soil conservation district board and watershed associations are sponsors of each subwatershed, and the Service works closely with the Washita Council of Soil Conservation Districts for over-all leadership. The Council consists of members of district boards and watershed associations.

Good progress is being made on the land treatment phase of the program. As of January 1, 1957, 12,350 or two-thirds of the farmers and ranchers in the watershed were soil conservation district cooperators. Their holdings cover

three million acres of the five million acre total area. Over 10,000 farmers have basic conservation plans and one-third of these are completely applied. About 70 percent of the planned practices have been applied on the land. In relation to total conservation needs, 50 percent of the terracing, 60 percent of the conservation crop rotation, and 42 percent of the range seeding has been applied. Proper use of range has been reported on one million acres, which is 39 percent of the two and three-fourths million acres needing this practice.

Contracts have been awarded on 60 floodwater-retarding structures during this fiscal year. One hundred and ninety structures have been completed or contracted to date. This represents 21 percent of the needed works of improvement on the 64 subwatersheds. All planned works of improvement and most of the land treatment measures have been completed on eight of the subwatersheds. Work plans developed to date total 26, covering 3,215 square miles or 41 percent of the watersheds.

The Bureau of Indian Affairs has assisted in the preparation of these work plans and in carrying out the land treatment on farms under its jurisdiction. The Forest Service participated in developing the Dead Indian-Wildhorse Creek work plan where a floodwater-retarding dam is planned on lands administered under Title III of the Bankhead Jones Farm Tenant Act. The Forest Service has also developed a recreational plan for the site.

During the spring floods in Oklahoma the completed projects were tested with rain storms up to more than 9 inches in a 24-hour period. During one storm on Sandstone Creek on April 18, 1957, the benefits from the reduction of flooding amounted to more than \$19,000. On the lower end of the Washita the benefits from the reduction from floodwater and sediment damages on two completed subwatersheds--Owl Creek and Chigley Sandy Creek--amounted to \$56,700. The storm of May 17 and 18 caused one and one-half million dollars damage on 14 subwatersheds on the lower part of the Washita. Had the program been installed the damage that occurred would have been reduced by 71 percent. This one million dollar benefit would have occurred to the farms along the tributaries and, in addition, the works of improvement would have greatly reduced the damages along the Washita main stem.

The sponsors have obtained all the easements on the recently developed plans for Saddle Mountain Creek, South Clinton Laterals, Panther Creek, Nine Mile Creek and Colbert Creek. They are actively obtaining easements on other tributaries including Ionine Creek, Criner Creek, Finn Creek, Peavine Creek, Rush Creek, Wildhorse Creek, Round Creek, Tonkawa Creek and Fast Runner Creek.

Easements have been obtained, design and specifications prepared or now being prepared to construct 54 floodwater retardation structures during the 1958 fiscal year and the accelerated land treatment program will be continued.

Yazoo River Watershed, Mississippi

Total Estimated Federal Cost \$39,339,364
Total Obligations through June 30, 1957 8,189,922

This watershed extends in a north-south direction from near the Mississippi-Tennessee line on the north to the vicinity of Yazoo City on the south. The area included in the project is 5,035 square miles or 3,222,400 acres.

The largest single item of floodwater damage in the watershed is to crops and pasture. Portions of the watershed are severely eroded and gullied. Sediment material from these eroded areas is transported directly into streams or is deposited on productive agricultural land.

The estimated total cost of installing the watershed program is \$54,005,400, of which local interests will provide 55 percent. Operations began in 1947 on a limited scale. Until the fiscal year 1957, the major emphasis was placed on treatment of critically eroding areas through vegetation and simple engineering measures. Some of the significant measures applied are as follows: 84,000 acres of tree planting, 42,000 acres of grasses and legumes, 3,640 stabilization and sediment control structures, 420 miles of diversion ditches, and 1,370 miles of roadside erosion control. Approximately 9,000 basic farm conservation plans have been prepared. These cover 1,510,000 acres or about one-half of the land within the watershed. Good progress has been made in installing land treatment measures. It is estimated that about half the measures included in the farm plans have already been installed.

Eleven drainage districts with expanded authority under State law have been organized during the past 18 months. All future work plans will be made with these groups and the soil conservation districts jointly. Drainage districts have authority to provide the necessary financing and the local people are responsible for acquiring easements and carrying out operations and maintenance responsibilities.

Heavy rains which fell in northern Mississippi following "hurricane Audrey" have caused renewed interest in flood prevention. The performance of completed-retarding structures during this storm convinced many of the local interests of the effectiveness of these measures. Two floodwater-retarding dams were completed in 1957 and 15 other dams are now under contract for construction. About 15 additional dams are scheduled for construction during the fiscal year 1958.

Emergency Measures

Section 216 of the Flood Control Act of 1950 authorizes the emergency treatment of watersheds impaired by fire or other natural elements to prevent serious sediment and flood damage to life and property. Seven such watersheds involving 87,200 acres of newly burned forest and range land were treated during fiscal year 1957 at a total cost of approximately \$344,540. Local beneficiaries contributed about \$288,430 and the Federal Government financed the remaining \$156,110 from flood prevention funds for "emergency measures."

Four of the seven areas were located in southern California, two in Arizona, and the seventh in Colorado. Approximately 398,000 pounds of rapid germinating rye grass, mustard, brome, and other grasses were sown by airplane or helicopter to provide an immediate protective cover over most of the burned areas. The seeding generally was successful. In addition, 11 debris basins and stabilizing structures were installed, some 7 miles of clogged channels were cleared, 10 miles of terraces were constructed, and 24 miles of fire control lanes and trails were stabilized.

Progress in Basic Data Collection

Work was begun by the Forest Service Southern Forest Experiment Station late in the 1956 fiscal year on the collection of basic runoff data and erosion conditions as related to slope and vegetative cover in the Little Tallahatchie and Yazoo watersheds in Mississippi. Information of this nature was badly needed by technicians for the design of adequate and economical structural measures and effective conservation treatment of watershed lands in that area. A group of three small subwatershed units selected for instrumentation consisted of abandoned, actively eroding, formerly cultivated lands, which were reverting to forest. Stream gaging and standard and recording precipitation gages were installed and provisions were made for sediment sampling. Another group of three sub-watershed units in depleted upland hardwoods were also selected for instrumentation and the instruments were installed in the 1957 fiscal year. Actual measurements will be begun in the 1958 fiscal year. This work will be continued until sufficient data has been accumulated to establish patterns from which technicians may make proper determinations as to adequate watershed improvement measures. Some data already available to the Experiment Station will also be analyzed in connection with this study.

In addition to the above installations the Department is conducting similar studies in other flood prevention watersheds. Reimbursements totalling \$21,417 were also paid to the U. S. Geological Survey for stream gaging and collecting rainfall and runoff data in the flood prevention watersheds for use by field technicians during the 1957 fiscal year.

(d) Water Conservation and Utilization Projects

Appropriation Act, 1958 and base for 1959	\$350,000
Budget Estimate, 1959	<u>335,000</u>
Decrease (due to reduction in program level for 1959 at the Eden Valley project)	<u>-15,000</u>

PROJECT STATEMENT

Project	1957	1958 (estimated)	Decrease	1959 (estimated)
Development of land for irrigation	\$341,952:	a/ \$350,000:	-\$15,000(1):	\$335,000
1956 appropriation available in 1957	-125,757:	- -	- -	- -
1957 appropriation available in 1958	15,805:	- -	- -	- -
Total appropriation or estimate	232,000:	350,000:	-15,000	335,000

a/ In addition, \$15,805 available from prior-year balances.

DECREASE

(1) A decrease of \$15,000 to reduce the level of irrigation development on the Eden Valley Project to the level scheduled for 1959 in the long range plan for completion of the project.

The Eden Valley Project in Wyoming is the only remaining active project under the authority of the Case-Wheeler Act. The schedule provides for completion of all irrigation development work and final sale of the developed farm units by December 31, 1961. Development work includes farm unit surveys, land levelling, installation of laterals and other water distribution structures and drains and seeding of cover crops on developed areas to prevent wind erosion damage. Land levelling, brush clearing and other irrigation development work carried out by force account are scheduled at the most efficient rate to meet the completion date. Funds available after the decrease would be adequate for planned 1959 project operations as scheduled in the long-range plan for completion of the project.

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (deleted matter enclosed in brackets; new language underscored):

For expenses necessary to carry out the functions of the Department under the Acts of [May 10, 1939 (53 Stat. 685, 719),] August 11, 1939 and October 14, 1940 (16 U.S.C. 590y-z-10), as amended and supplemented, June 28, 1949 (63 Stat. 277), and September 6, 1950 (7 U.S.C. 1033-39), relating to water conservation and utilization projects, to remain available until expended, [\$350,000] \$335,000, which sum shall be merged with the unexpended balances of funds heretofore appropriated to said Department for the purpose of said acts.

The change in language proposes deletion of reference to the Act of "May 10, 1939 (53 Stat. 685, 719)" and substitution of reference to the Act of "August 11, 1939". The Act of May 10, 1939 cited in the language is the 1940 Department of Interior Appropriation Act which appropriated the initial funds and authorized the work of the water conservation and utilization projects. The funds initially appropriated have long since been expended. Permanent legislation for this work was enacted by the Congress August 11, 1939 (53 Stat. 1418) and was amended and reenacted October 14, 1940 (54 Stat. 1119).

This change merely provides citation in the language to the proper basic authority under which the remaining project is being operated and does not in any way change the nature or character of the work conducted under this item.

STATUS OF PROGRAM

Examples of Recent Progress:

Status of Project Development

Nineteen Water Conservation and Utilization Projects were originally authorized for development and settlement under the Department of Interior Appropriation Act of 1940 and the "Case-Wheeler" Act of August 11, 1939, as amended and supplemented. Six of these projects are no longer planned for development due to inflationary land prices and other changes since they were authorized. Twelve projects have been completed. The only remaining project of the original authorization, located at Eden Valley, Wyoming, is scheduled for completion in the fiscal year 1962.

Eden Valley Project, Wyoming

Land development for irrigation on the Government-owned land on this project was begun in the spring of 1954. At that time there was before the Congress a proposal to authorize the exchange of certain Federal land on the project for public domain land held by the Department of the Interior and for lands belonging to the State of Wyoming that were found to be better suited for irrigation farming. The Congress enacted Public Law 377, approved May 28, 1954, authorizing these land exchanges. The transfers from the Department of Interior to the Department of Agriculture were completed during the 1956 fiscal year. The land exchanges between the Department of Agriculture and the State of Wyoming were completed during the 1957 fiscal year.

Project land development by the Department on this project is continuing in accordance with the revised development schedule adopted in the 1956 fiscal year which provides for a period of development, settlement, and sale of farming units extending into the fiscal year 1962.

The first sale of newly developed irrigation farms was made in December 1956. The second sale is planned prior to the 1958 cropping season. It is expected that the remaining irrigation development and sale of lands on this project will be completed in accordance with the presently planned project development schedule.

Obligations by Projects

The following table shows the actual obligations incurred under this program in 1957 and estimated obligations for the fiscal year 1958 and 1959.

Project	: Actual : F. Y. 1957	: Estimated : F. Y. 1958	: Estimated : F. Y. 1959
Eden Valley, Wyoming (Direct Project Costs)	: \$314,177	: \$338,055	: \$307,300
General Administration	: 27,775	: 27,750	: 27,700
Total Estimate	: 341,952	: 365,805	: 335,000

Development Accomplishments and Work Load

The following table shows some of the more important items of development work planned, the amount completed to date, and the amount remaining to be done:

Item	Unit	Total Development Planned	Accomplished to 6/30/57	Remaining to be done 7/1/57
Topographic surveys	Acre	162,541	161,478	1,063
Land classification	Acre	194,089	194,089	-0-
Unit subdivisions	No.	546	546	-0-
Clearing	Acre	30,651	29,324	1,327
Leveling	Acre	70,534	64,004	6,530
Farm laterals	Mile	1,489	868	621
Farm drains	Mile	596	458	138
Farm irrigation structures ..	No.	9,094	8,237	857

Status of Land Development and Farm Sales
as of June 30, 1957

Project	Date Authorized	Irrigable Acreage	Percent Development Completed	Federally-owned tract ^{c/}	Number Sold
Angostura	March 6, 1941	12,154	100	105	105
Bitterroot	March 22, 1944	18,630	8 ^{b/}	-	-
Buffalo Rapids I ..	May 15, 1940	14,507	100	95	95
Buffalo Rapids II .	May 15, 1940	10,400	100	110	110
Buford-Trenton	Sept. 23, 1939	14,729	100	134	134
Dodson ^{a/}	March 17, 1944	1,200	100	-	-
Eden Valley	Sept. 18, 1940	20,000	60	59	4
Intake ^{a/}	Jan. 20, 1944	825	99 ^{b/}	-	-
Mancos	Oct. 24, 1940	10,000	54 ^{b/}	2	2
Mirage Flats	March 30, 1940	12,000	100	111	111
Missoula ^{a/}	May 10, 1944	900	100	-	-
Newton ^{a/}	Oct. 17, 1940	2,225	100	-	-
Post Falls	Jan. 29, 1944	3,260	90 ^{b/}	17	17
Rapid Valley	Nov. 8, 1939	12,000	- ^{b/}	-	-
Scofield ^{a/}	May 24, 1943	12,500	30 ^{b/}	-	-

^{a/} Projects include no Federally-owned land.

^{b/} Projects closed, no further development work contemplated.

^{c/} In addition there are privately-owned lands within a number of projects on which development work is done.

Project Authorizations and Obligations through 6/30/57

Project	Present	Obligations through June 30, 1957			
	Project	"Wheeler-	"Great	Contri-	
	Authori-	Case"	Plains"	buted	Total
	zation	Funds	Funds	Funds	
Angostura	\$1,484,000:	\$1,399,311:	--	--	\$1,399,311
Balmorhea	569,000:	--	--	--	--
Bismarck	None	--	--	--	--
Bitterroot	752,000:	167,811:	--	--	167,811
Buffalo Rapids I	743,770:	99,296:	\$210,000	\$424,175	733,471
Buffalo Rapids II	810,122:	319,721:	345,000	139,608	804,329
Buford-Trenton	1,094,000:	62,798:	762,958	264,838	1,090,594
Dodson	84,000:	51,484:	--	--	51,484
Eden Valley	2,340,000:	1,219,228:	154,595	5,061	1,378,884
Intake	41,000:	20,817:	--	--	20,817
Mancos	473,000:	366,879:	--	--	366,879
Mann Creek	None	--	--	--	--
Mirage Flats	687,300:	479,152:	170,000	36,837	685,989
Missoula	133,000:	65,297:	--	--	65,297
Newton	75,500:	74,230:	--	--	74,230
Post Falls	196,000: ^{a/}	196,367:	--	--	196,367
Rapid Valley	170,000:	7,117:	15,042	--	22,159
Saco Divide	480,000:	--	405	--	405
Scofield	350,000:	119,531:	--	12,200	131,731
Total direct project costs	10,482,692:	4,649,039:	1,658,000	882,719	7,189,758
Project investigations and surveys	--	233,473:	--	--	233,473
General administration: Farm Security	--	349,091:	--	--	349,091
Administration	--	4,137:	--	--	4,137
Office of Production	--	59,957:	--	--	59,957
Office of the Solicitor	--	877,064:	--	--	877,064
Soil Conservation Service	--				
Total Obligations through 6/30/57	--	6,172,761:	1,658,000	882,719	8,713,480

^{a/} Net obligations after deduction for residual value of equipment is \$186,545.

(e) Great Plains Conservation Program

Appropriation Act, 1958 and base for 1959	\$10,000,000
Budget Estimate, 1959	<u>10,000,000</u>

PROJECT STATEMENT

Project	1957	1958 :(estimated):	1959 :(estimated):
Great plains conservation program:	:	:	:
(a) Cost-sharing assistance	- -	\$8,240,000:	\$8,240,000
(b) Technical services and operating expenses	- -	1,760,000:	1,760,000
Total appropriation or estimate	- -	10,000,000:	10,000,000

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (deleted matter enclosed in brackets; new language underscored):

For necessary expenses to carry into effect a program of conservation in the Great Plains area, pursuant to section 16(b) of the Soil Conservation and Domestic Allotment Act, as added by the Act of August 7, 1956 [(70 Stat. 1115-1117)] (16 U.S.C. 590p), \$10,000,000, to remain available until expended.

The change in language merely substitutes the U. S. Code references for the statutory references previously shown in the appropriation language.

STATUS OF PROGRAM

Current Activities:

The Great Plains Conservation Program authorized under Public Law 1021, 84th Congress, aids farmers and ranchers in counties in the 10 Great Plains States, designated as susceptible to serious wind erosion, in developing and carrying out conservation plans that will help to minimize climatic hazards and protect their lands from erosion and deterioration by natural causes. This is done by providing them needed technical assistance and through long-term cost-sharing contracts. This is a new and voluntary program which supplements existing Departmental programs and activities and does not replace any of them.

Cost-sharing contracts extending from 3 to 10 years are offered farmers and ranchers who develop a plan of operations for their farm or ranch unit. These contracts include a time schedule for installing the eligible practices which is acceptable to the Secretary. All contracts must terminate by December 31, 1971.

A list of practices eligible for cost-shares has been developed and published. These are enduring permanent-type practices in the main and include: establishing permanent plant cover, field or contour strip-cropping, contour cultivation, improving range cover, trees or shrubs for windbreaks or shelterbelts, establishing waterways, building terrace systems, chiseling or pitting range lands, improving dams or ponds for irrigation, constructing wells for livestock, installing pipe, fencing, and controlling brush. The maximum cost-share rate offered in any contract cannot exceed 80 percent of the average estimated cost of installing each eligible practice. There is no limitation on the amount of cost shares an individual may earn under the program except a limitation of \$2,500 for cost shares for improving dams or ponds for irrigation. A farmer or rancher may receive a cost-share payment when he has carried out a practice or an identifiable unit of his plan. The law provides that total cost shares paid under the program shall not exceed \$25 million for any one program year, and the total cost of the program excluding administrative expense may not exceed \$150,000,000.

The farmer or rancher who signs a Great Plains Program contract is responsible for accomplishing his plan of operations and should use all available sources of assistance under other local, State, or Departmental programs that contribute to achieving conservation land treatment and moisture conservation. The services of soil conservationists, engineers, or other agricultural specialists and aids are provided to assist farmers and ranchers to develop acceptable plans of operations and to install the land-use and conservation treatment measures agreed to in the contracts.

Program Assignments

Administrative responsibility for carrying out the Great Plains Conservation Program has been assigned to the Soil Conservation Service.

A continuing inter-agency Departmental committee, consisting of representatives of the Soil Conservation Service (as Chairman), Agricultural Conservation Program Service, Agricultural Marketing Service, Agricultural Research Service, Commodity Stabilization Service, Farmers Home Administration, Federal Crop Insurance Corporation, Federal Extension Service, Forest Service, and Office of Information, has been designated by the Secretary to recommend program policies, procedures, and regulations and to assure coordination of all Departmental resources in the program. State and County Program Committees have been established to help coordinate the program in the States and counties and adapt it to specific needs within the program regulations.

Program Supplements Other Departmental Programs

Prospective program participants are advised to utilize fully all going agricultural and other programs that will aid the participant to achieve the appropriate land use and conservation treatment of his farm or ranch. In numerous cases it is anticipated that applicants for Great Plains Program contracts may find that operating loans, soil and water conservation loans, or land purchase loans from the Farmers Home Administration, Agricultural Conservation Program cost-sharing, participation in the Soil Bank Programs (Acreage Reserve or Conservation Reserve) or other available assistance may make possible sound plans of operations as a basis for Great Plains Program contracts. There will likely be cases where thorough investigation and the professional conservation assistance provided the farmer or rancher will determine that the objectives of the producer and the Great Plains Program can best be reached through measures other than the long-range cost-sharing contract offered under this program.

Recent Progress:

Following is the estimated distribution of the Great Plains Conservation Program funds by agency between cost-sharing payments and operating expense:

Item and Agency	1958 Estimate	1959 Estimate
Cost-Sharing Payments by		
Soil Conservation Service	\$8,240,000	\$8,240,000
Operating Expenses:		
Agricultural Conservation		
Program Service	25,000	25,000
Commodity Stabilization Service	143,000	143,000
Forest Service	30,000	30,000
Office of Information	16,400	19,000
Soil Conservation Service	1,545,600	1,543,000
Subtotal	1,760,000	1,760,000
GRAND TOTAL	10,000,000	10,000,000

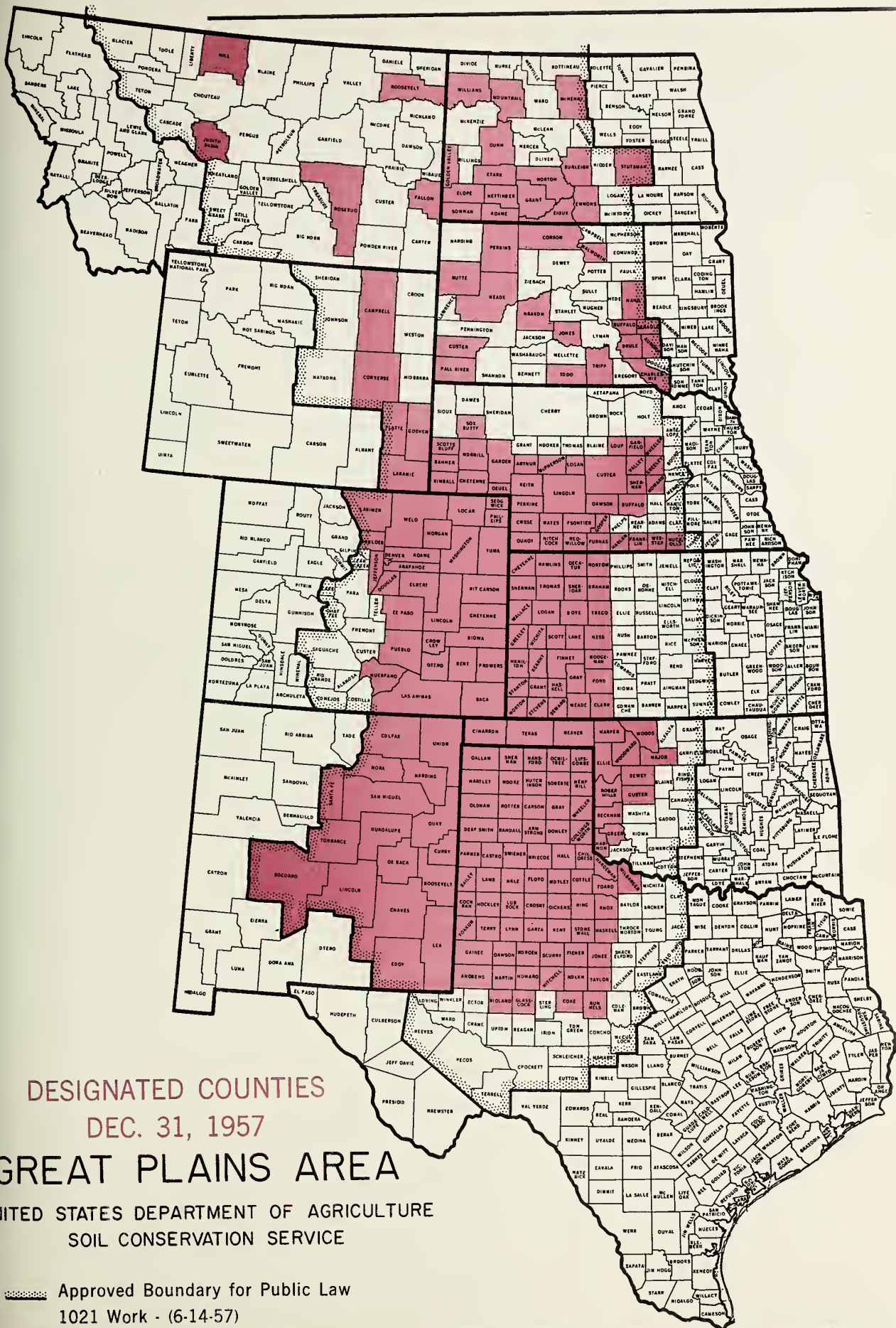
Participating Counties Designated by Secretary

There are 825 counties in the 10 Great Plains States of which 422, with a total land area of 386,328,960 acres, were listed as eligible for work under the Great Plains Conservation Program. The 1954 Agricultural Census reports 113,027,570 acres were used for cropland and 228,116,797 acres remained as native range land in farms within these eligible counties. Farms in the area average about 1,022 acres in size, varying from an average of 432 acres in the 28 eligible counties in Oklahoma to 3,626 acres average size in the 11 eligible Wyoming counties.

The Secretary had designated 233 counties to participate in the Great Plains Conservation Program by December 31, 1957 (additional counties may be designated from time to time). A table of the area of the designated counties compared with the eligible area in each State follows:

Item	: Eligible Counties		: Designated Counties	
	: (12/31/57)		: (12/31/57)	
	: No.	: Area(Acres)	: No.	: Area (Acres)
Southern Great Plains:	:	:	:	:
Colorado	: 40	: 40,611,200	: 27	: 31,493,120
Kansas	: 62	: 34,160,640	: 31	: 17,672,960
New Mexico.....	: 17	: 39,062,400	: 17	: 39,062,400
Oklahoma	: 28	: 19,153,920	: 14	: 10,593,280
Texas	: 98	: 66,225,920	: 65	: 39,722,240
Subtotal	: 245	: 199,214,080	: 154	: 138,544,000
Northern Great Plains:	:	:	:	:
Montana	: 37	: 62,532,480	: 5	: 8,867,840
Nebraska	: 60	: 37,604,480	: 36	: 20,296,320
North Dakota	: 30	: 28,481,280	: 16	: 16,005,760
South Dakota	: 39	: 35,498,240	: 17	: 16,684,800
Wyoming	: 11	: 22,998,400	: 5	: 10,220,160
Subtotal	: 177	: 187,114,880	: 79	: 72,074,880
Great Plains Total....	: 422	: 386,328,960	: 233	: 210,618,880
	:	:	:	:

A map of the eligible area of the Great Plains indicating the designated counties and a list of these 233 designated counties as of December 31, 1957 follows:



DESIGNATED COUNTIES
DEC. 31, 1957

GREAT PLAINS AREA

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Approved Boundary for Public Law
1021 Work - (6-14-57)

COLORADO (27)--Adams, Arapahoe, Baca, Bent, Boulder, Cheyenne, Crowley, Douglas, Elbert, El Paso, Huerfano, Jefferson, Kiowa, Kit Carson, Larimer, Las Animas, Lincoln, Logan, Morgan, Otero, Phillips, Prowers, Pueblo, Sedgwick, Washington, Weld, Yuma.

KANSAS (31)--Cheyenne, Clark, Decatur, Finney, Ford, Gove, Graham, Grant, Gray, Greeley, Hamilton, Haskell, Hodgeman, Kearny, Lane, Logan, Meade, Morton, Ness, Norton, Rawlins, Scott, Seward, Sheridan, Sherman, Stanton, Stevens, Thomas, Trego, Wallace, Wichita.

MONTANA (5)--Fallon, Hill, Judith Basin, Rosebud, Roosevelt.

NEBRASKA (36)--Arthur, Banner, Box Butte, Buffalo, Chase, Cheyenne, Custer, Dawson, Deuel, Dundy, Franklin, Frontier, Furnas, Garden, Garfield, Coper, Greeley, Harlan, Hayes, Hitchcock, Howard, Keith, Kimball, Lincoln, Logan, Loup, McPherson, Morrill, Nuckolls, Perkins, Red Willow, Scotts Bluff, Sherman, Valley, Webster, Wheeler.

NEW MEXICO (17)--Chaves, Colfax, Curry, DeBaca, Eddy, Guadalupe, Harding, Lea, Lincoln, Mora, Quay, Roosevelt, San Miguel, Santa Fe, Socorro, Torrance, Union.

NORTH DAKOTA (16)--Adams, Bowman, Burleigh, Dunn, Emmons, Grant, Golden Valley, Hettinger, McHenry, Morton, Mountrail, Sioux, Slope, Stark, Stutsman, Williams.

OKLAHOMA (14)--Beaver, Beckham, Cimarron, Custer, Dewey, Ellis, Greer, Harmon, Harper, Major, Roger Mills, Texas, Woods, Woodward.

SOUTH DAKOTA (17)--Aurora, Brule, Buffalo, Butte, Charles Mix, Corson, Custer, Fall River, Haakon, Hand, Jerauld, Jones, Meade, Perkins, Todd, Tripp, Wolworth.

TEXAS (65)--Andrews, Armstrong, Bailey, Border, Brisco, Carson, Castro, Childress, Cochran, Coke, Collingsworth, Cottle, Crosby, Dallam, Dawson, Deaf Smith, Dickens, Donley, Fisher, Floyd, Fear, Gaines, Garza, Glasscock, Gray, Hale, Hall, Hansford, Hardeman, Hartley, Haskell, Hemphill, Hockley, Howard, Hutchinson, Jones, Kent, King, Knox, Lamb, Lipscombe, Lubbock, Lynn, Martin, Midland, Mitchell, Moore, Motley, Nolan, Ochiltree, Oldham, Parmer, Potter, Randall, Roberts, Runnels, Scurry, Sherman, Stonewall, Swisher, Taylor, Terry, Wheeler, Wilbarger, Yoakum.

WYOMING (5)--Campbell, Converse, Goshen, Laramie, Platte.

Condition of the Wind Erosion Area

A summary of local estimates made in 285 counties indicates that about 10.3 million acres were damaged in the Great Plains during the blow season from November 1, 1956, to May 31, 1957. An additional 12.3 million acres were in condition to blow on June 1, 1957. March was the only month in which severe and damaging storms occurred during the 1956-57 blow season. Nearly 1.2 million acres of growing wheat were destroyed during the season.

About 12.4 million acres of cropland, not otherwise protected from wind action, were listed or chiseled in the Great Plains during the blow season.

Monthly estimates of land damaged during the past three blow seasons were as follows:

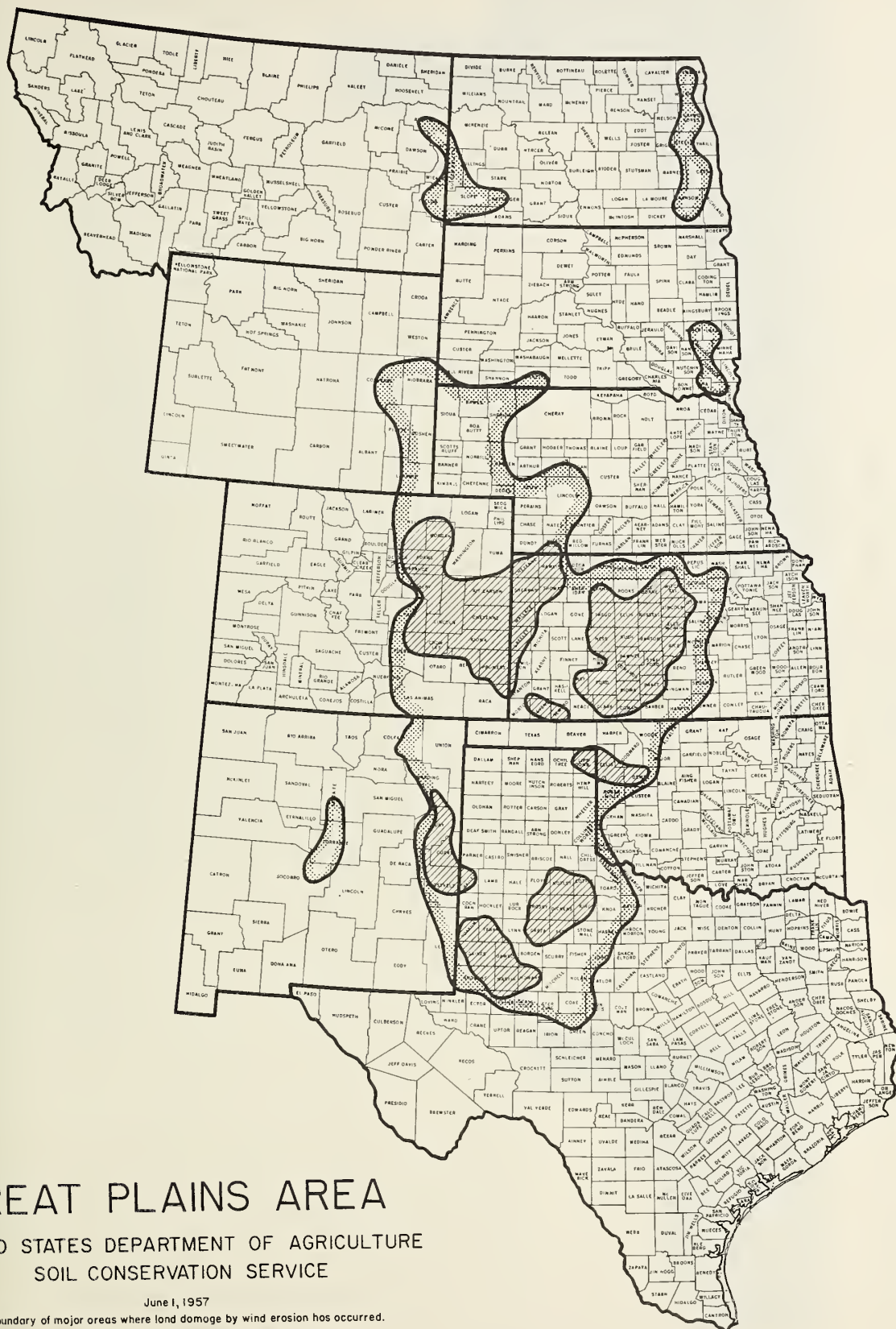
	Cumulative Million Acres Damaged						
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1954-55 Season	1.1	4.1	4.5	5.3	10.6	15.0	15.8
1955-56 Season	.4	.6	1.0	3.3	7.2	9.3	9.8
1956-57 Season	2.0	2.7	3.2	3.9	9.0	10.1	10.3
Increase in 1956-57 over 1955-56	400%	350%	220%	18%	25%	9%	5%

Land Damaged This Season
(As of June 1, 1957)

States	Cropland Acres	Rangeland Acres	Other Land Acres	Total Land Acres
Southern Great Plains:				
Colorado	2,338,000	1,257,000	42,000	3,637,000
Kansas	2,359,000	68,000	17,000	2,444,000
New Mexico	459,000	184,000	2,000	645,000
Oklahoma	230,000	12,000	15,000	257,000
Texas	1,230,000	461,000	70,000	1,761,000
Subtotal	6,616,000	1,982,000	146,000	8,744,000
Northern Great Plains:				
Montana	79,000	7,000	1,000	87,000
Nebraska	350,000	57,000	3,000	410,000
North Dakota	942,000	2,000	0	944,000
South Dakota	103,000	0	0	103,000
Wyoming	13,000	45,000	1,000	59,000
Subtotal	1,487,000	111,000	5,000	1,603,000
Great Plains TOTAL	8,103,000	2,093,000	151,000	10,347,000

The above estimates are based on surface soil conditions, soil moisture reserves, adequacy of cover and crop residues, and the condition of growing crops. The reported damages by wind action to cropland, rangeland, and other land are soil removal and deposition which subject the land to further erosion hazards, materially lower yields, or impair inherent productive capacity of the land.

The attached map and charts show the parts of the Great Plains in which general blowing and severe damages occurred during the 1956-57 blow season, a comparison of cumulative damages each month during the blow season for the past three years, and the acreage damaged each year since 1934.



GREAT PLAINS AREA

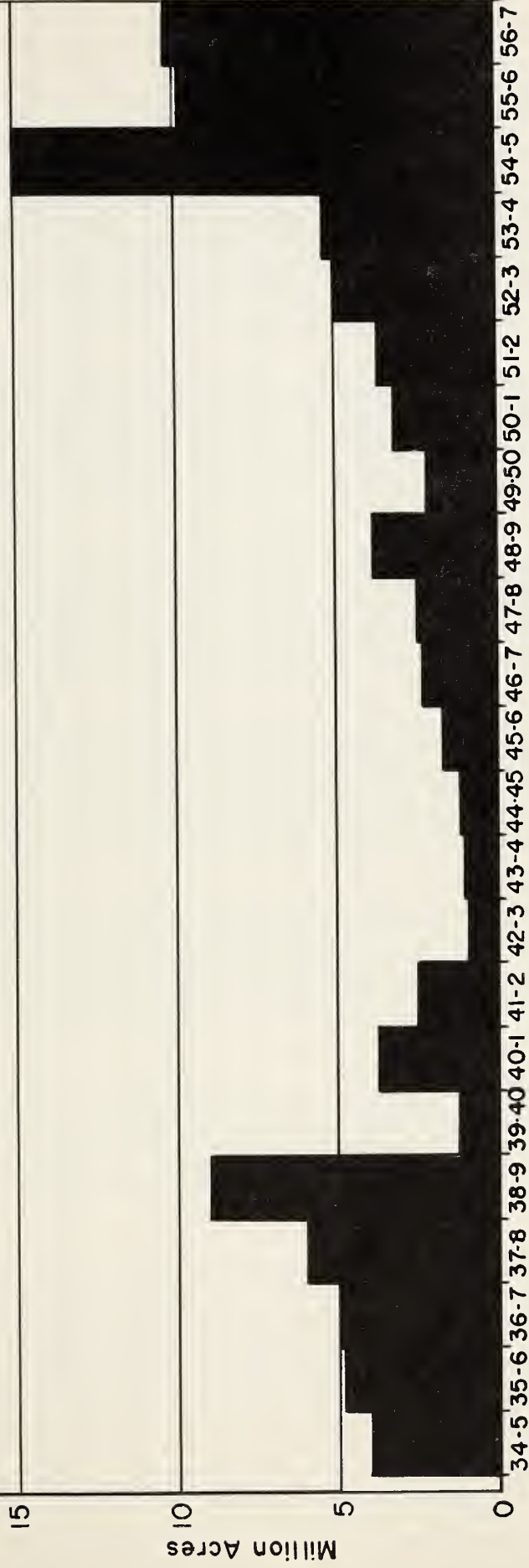
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

June 1, 1957

Boundary of major areas where land damage by wind erosion has occurred.
Damage has also occurred in other widely scattered areas.

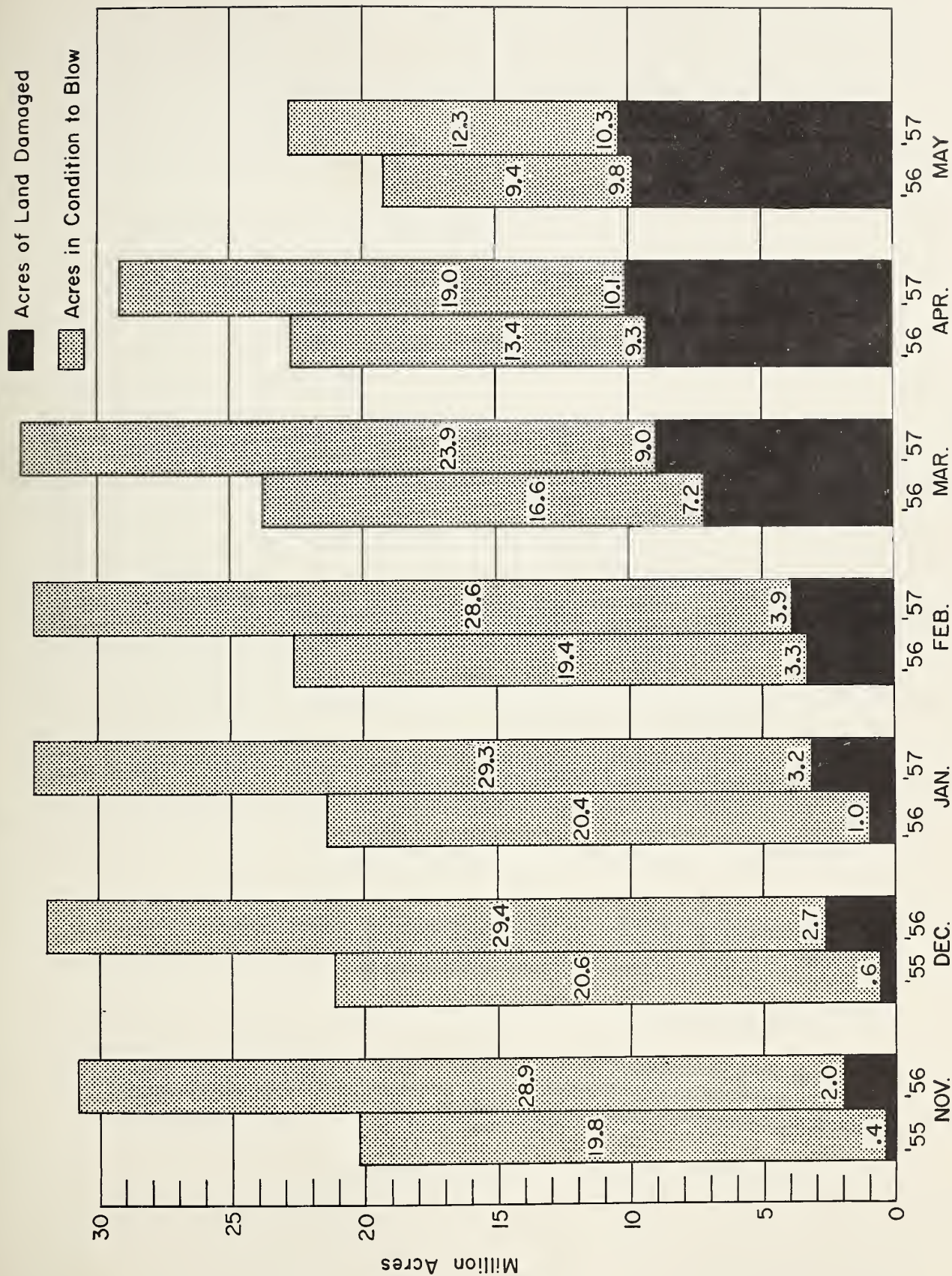
Most seriously damaged areas.

ACRES OF LAND DAMAGED ANNUALLY IN GREAT PLAINS Seasons 1934-35 to 1956-57 inclusive



Note: Data for period 1943-44 through 1952-53 were obtained from reports of the Great Plains Council.
All other data were obtained from SCS reports.

ESTIMATES OF CUMULATIVE ACRES DAMAGED AND LAND IN CONDITION TO BLOW-GREAT PLAINS 1955-56 AND 1956-57 SEASONS



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts, which, by November 30, 1957, were actually received or programmed for 1958 or 1959. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	: Obligations, 1957	: Estimated Obligations, 1958	: Estimated Obligations, 1959
Alotment from:			
<u>Conservation Reserve, Soil Bank</u>			
<u>Program, Agriculture - For</u>			
counsel and guidance to			
farmers and ranchers in con-			
verting acreage from crop			
production to grass and			
trees, and technical services:			
in selection and establish-			
ment of soil and water con-			
servation practices	\$775,003	\$1,000,000	\$1,000,000
Allocations and Working Funds			
(Advances from other agencies):			
<u>International Cooperation</u>			
<u>Administration - For training:</u>			
and technical assistance			
activity	33,479	35,600	- -
Trust Funds:			
<u>Technical Services and Other</u>			
<u>Assistance, Agricultural Con-</u>			
<u>servation Program Service - For:</u>			
technical and other assist-			
ance to farmers and ranchers			
in participating counties			
pursuant to agreements with			
individual Agricultural Con-			
servation Program State and			
County Committees	7,167,244	7,500,000	7,500,000
Miscellaneous Contributed Funds,			
<u>Department of Agriculture:</u>			
For flood control works of			
improvement on the Los			
Angeles River watershed ...	147,409	55,438	- -
For cooperation with Soil			
Conservation Commission,			
California, in developing			
cultural methods and exper-			
imental seed supplies at			
the Pleasanton Nursery	28,826	31,261	30,000

(Continued on next page)

Item	: : Obligations, : 1957	: Estimated : Obligations, : 1958	: Estimated : Obligations, : 1959
Trust Funds--Continued:	:	:	:
For cooperation with State and	:	:	:
local organizations in the	:	:	:
survey of watershed projects	:	:	:
and the installation of	:	:	:
watershed works of improve-	:	:	:
ment	146,269	163,301	295,000
Total, Miscellaneous	:	:	:
Contributed Funds	322,504	250,000	325,000
Total, Trust Funds	7,489,748	7,750,000	7,825,000
Obligations under Reimbursements	:	:	:
from Governmental and Other	:	:	:
Sources:	:	:	:
Conservation operations:	:	:	:
For sale of cartographic	:	:	:
reproductions, cooperative	:	:	:
projects with State agen-	:	:	:
cies, detail of personnel	:	:	:
to other Federal agencies,	:	:	:
sale of equipment and	:	:	:
accessories for which the	:	:	:
proceeds are used to pur-	:	:	:
chase similar items, etc. .	2,158,250	2,300,000	2,300,000
Watershed protection	52,280	206,500	219,500
Flood prevention	26,738	25,000	20,000
Water conservation and utiliza-	:	:	:
tion projects	330	500	500
Great Plains conservation	:	:	:
program	- -	10,000	10,000
Total, Reimbursements	2,237,598	2,542,000	2,550,000
TOTAL OBLIGATIONS UNDER ALLOT-	:	:	:
MENTS AND OTHER FUNDS	10,535,828	11,327,600	11,375,000

PASSENGER MOTOR VEHICLES

Conservation Operations

The estimates for 1959 provide for the scheduled replacement of 153 passenger motor vehicles during the fiscal year. The estimate reflects anticipated transfers of 16 passenger vehicles to General Services Administration motor pools to be established at 4 field locations during the fiscal year 1958. The Service authorizes the use of passenger motor vehicles by area conservationists, technical specialists, survey supervisors and State office personnel for travel where public transportation is inadequate, non-existent or not feasible. As a rule, passenger vehicles are used for travel to several locations in a single day. Frequent stops are made to examine field work or to discuss the soil conservation program with resident technicians at isolated points. It is impossible to use other means of transportation in lieu of these vehicles because of the nature of this travel, the frequency of the stops and the fact that common carrier facilities do not serve the rural areas.

The 153 passenger motor vehicles are estimated to cost \$191,400 after applying the trade-in value of the old vehicles.

Watershed Protection

The estimates for 1959 provide for the replacement of 3 passenger motor vehicles during the year. These vehicles are required by technicians and survey parties for investigation and surveys of proposed small watershed projects and for planning and supervising the installation of works of improvement in authorized watershed project areas. Transportation of two or more technicians or aides is frequently required by the nature of the work. Most watershed project areas are not served by common carrier and the use of pickup trucks is not feasible.

It is estimated that the 3 passenger vehicles will cost \$3,900 considering trade-in values.

Flood Prevention

Eight passenger motor vehicles are scheduled to be replaced during the fiscal year 1959. These vehicles will replace the same number now in use. They are used by technicians and aides engaged in the installation of works of improvement in the eleven authorized projects.

These employees usually have to travel considerable distances in rural areas where public transportation is inadequate or non-existent and under circumstances where the use of pickup trucks is not feasible.

The eight passenger vehicles are estimated to cost \$12,250 after applying the trade-in value of the old vehicles.

Great Plains Conservation Program

The estimates for 1959 include the scheduled replacement of three passenger vehicles during the year.

Assistant State Conservationists for the Great Plains Program are required to travel in rural areas where the use of public transportation or pickup trucks is not feasible.

The three vehicles are estimated to cost \$4,500.

General

The Soil Conservation Service operated 1,027 passenger motor vehicles on June 30, 1957. None of these are used in Washington, D. C., but are distributed among the 51 State and Territorial offices, approximately 300 area offices and various technical specialists located at field headquarters. Resident technicians servicing the farmers and ranchers in soil conservation districts travel in pickup trucks to field areas to conduct surveys and prepare conservation plans, perform engineering work or to lay out conservation practices.

All of the vehicles proposed to be replaced will be well within the standards of 60,000 miles or 6 years of age established by the General Services Administration. Many of these vehicles are so old and have reached such high mileage that they are no longer economical to operate. Many of them are frequently out of service for repairs, some of which entail long periods of time due to general deterioration from age and use.

The policy of the Soil Conservation Service is to replace one-seventh of the inventory each year. This permits replacement of vehicles that have reached seven years of age and have been driven about 70,000 miles. This policy is based on past experience. It has not always been possible to maintain this schedule of replacements.

As of June 30, 1957, the Service had 100 vehicles seven years or older and about 247 with 70,000 miles or more. The Service will replace 224 vehicles during the fiscal year 1958. By June 30, 1958 another 70 will have been in use seven years, and it is estimated that approximately 94 will have been driven more than 70,000 miles.

The 167 replacements scheduled for 1959 will enable replacement of all passenger vehicles in the fleet over 7 years of age or 70,000 miles. Actual replacement will, however, be based upon economy of operation, and expected use factors as well as the age and mileage. Past efforts to bring the fleet back on a sound replacement schedule have been effective. On June 30, 1957 only 9.7% of the fleet was more than 7 years old

compared with 16% a year earlier. Similarly on June 30, 1957 about 24% of the fleet registered mileage over 70,000 miles as compared with 31.5% a year earlier. Replacements proposed for the current fiscal year will improve this relationship. The net value of the fleet of passenger motor vehicles June 30, 1957 was \$735,909.

Passenger cars are not assigned to one individual exclusively at locations where more than one employee has need for the equipment. This allows several employees to use a single car. Also, all employees are directed by Service policy to coordinate travel to the same locality so as to utilize transportation equipment efficiently. Thus two or more employees are transported in the same vehicle whenever it is feasible.

Tabulations showing total mileage and age of passenger motor vehicles operated by the Soil Conservation Service on June 30, 1957 follows:

<u>Mileage</u>	<u>Number of Passenger Vehicles</u>	<u>Percentage</u>
0 - 1,000	4	0.4
1,000 - 10,000	217	21.1
10,000 - 20,000	82	8.0
20,000 - 30,000	108	10.5
30,000 - 40,000	92	9.0
40,000 - 50,000	77	7.5
50,000 - 60,000	106	10.3
60,000 - 80,000	188	18.3
80,000 - 100,000	122	11.9
Over 100,000	31	3.0
	<u>1,027</u>	<u>100.0</u>

<u>Year Model</u>	<u>Number of Passenger Vehicles</u>	<u>Percentage</u>
1957	201	19.6
1956	177	17.2
1955	107	10.4
1954	45	4.4
1953	187	18.2
1952	83	8.1
1951	127	12.4
1950	45	4.4
1949	23	2.2
1948	23	2.2
Prior year models	9	0.9
	<u>1,027</u>	<u>100.0</u>

AGRICULTURAL CONSERVATION PROGRAM SERVICE

Purpose Statement

The Agricultural Conservation Program is authorized by the provisions of sections 7 to 16(a), inclusive, and section 17 of the Soil Conservation and Domestic Allotment Act, as amended.

The purposes of the Act include (1) restoring and improving soil fertility, (2) reducing erosion caused by wind and water, and (3) conserving water on land. To achieve these objectives, the Agricultural Conservation Program Service offers cost-sharing assistance to individual farmers and ranchers in all of the 48 States, Alaska, Hawaii, Puerto Rico and the Virgin Islands for carrying out approved soil-building and soil-and-water conserving practices on their farms. This assistance represents only a part of the cost of performing the practice. The farmer bears the balance of the cost and in addition supplies the labor necessary to carry out the practice. Allocations are made to States based upon conservation needs.

Cost-sharing assistance is offered only for the practices considered necessary to meet the most urgently needed conservation problems of the farm, which would not otherwise be carried out the extent needed. To be eligible for cost-sharing the farmer must make application therefor before beginning the practice.

Conservation measures for which cost-sharing assistance is offered, include practices primarily for:

1. Establishment of permanent protective cover.
2. Improvement and protection of established vegetative cover.
3. Conservation and disposal of water.
4. Establishment of temporary vegetative cover.
5. Temporary protection of soil from wind and water erosion.

Cost-sharing assistance is available in the form of:

1. Partial payment of the purchase price of materials and services needed by the farmer for carrying out approved practices, or
2. Partial reimbursement to farmers who have carried out approved practices at their own expense.

Materials and services are obtained through local private sources where practicable. Rates of assistance vary by practices and by States and areas so as to make the most effective use of available funds.

As of November 30, 1957, the Agricultural Conservation Program Service had 57 full-time employees and 1 part-time employee, all of whom are located in Washington, D. C.

	Appropriated, 1958	Budget Estimate, 1959
Appropriation	\$212,000,000	\$235,000,000

(a) Agricultural Conservation Program

	On Direct Appropriation Basis	On Program Authorization Basis
Appropriation Act, 1958 and base for 1959	\$212,000,000	\$250,000,000
Budget Estimate, 1959	235,000,000	125,000,000
Change	<u>+23,000,000</u>	<u>-125,000,000</u>

SUMMARY OF INCREASE, 1959
(On basis of direct appropriation)

Increase to carry out the 1958 program in the amount authorized	+23,000,000
--	-------------

The Agricultural Conservation Program is operated on a program or crop year basis and cost-sharing assistance is given to farmers upon completion of approved measures. Funds for cash payments earned under the 1957 Agricultural Conservation Program, which closed on December 31, 1957, were made available in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1958. In that Act, the Congress also authorized the formulation and administration of a \$250 million program for 1958 for which this estimate is submitted.

PROJECT STATEMENT
(On basis of program authorizations)

Project	:Appropriation: : 1957 : (1956 Program): : (actual) :	:Appropriation: : 1958 : (1957 Program): : (estimate) :	Increase	:Appropriation: : 1959 : (1958 Program): : (estimate) :
1. Cost-sharing assist-	:	:	:	:
ance to farmers ..	\$214,341,348	\$223,859,750	- -	\$223,859,750
Other program	:	:	:	:
expenses	1,272,957	1,442,250	- -	1,442,250
Total program expenses	<u>215,614,305</u>	<u>225,302,000</u>	- -	<u>225,302,000</u>
2. Operating expenses:	:	:	:	:
County committee	:	:	:	:
expenses:	:	:	:	:
ASC County	:	:	:	:
committees	19,716,385	19,564,385	- -	19,564,385
Forest Service	98,536	107,815	- -	107,815
Total county com-	:	:	:	:
mittee expenses ..	<u>19,814,921</u>	<u>19,672,200</u>	- -	<u>19,672,200</u>
National and	:	:	:	:
State Office	:	:	:	:
expenses:	:	:	:	:
Agricultural Con-	:	:	:	:
servation Program	:	:	:	:
Service	426,447	547,750	- -	547,750

Project	:Appropriation: : 1957 (1956 Program) : (actual)	:Appropriation: : 1958 (1957 Program) : (estimate)	Increase	:Appropriation : 1959 (1958 Program) : (estimate)
2. Operating expenses:	:	:	:	:
continued:	:	:	:	:
Commodity Stabili-	:	:	:	:
zation Service ..	\$599,484:	\$945,840:	- -	\$945,840
ASC State Com-	:	:	:	:
mittees	3,471,172:	3,516,235:	- -	3,516,235
Forest Service .	12,685:	15,975:	- -	15,975
Total National and	:	:	:	:
State office	:	:	:	:
expenses	4,509,783:	5,025,800:	- -	5,025,800
Total operating	:	:	:	:
expenses	24,324,709:	24,698,000:	- -	24,698,000
Total obligations ..	239,939,014:	250,000,000:	- -	250,000,000
Adjustments:	:	:	:	:
Difference in amount:	:	:	:	:
used for purchase	:	:	:	:
of conservation	:	:	:	:
materials and serv-	:	:	:	:
ices from prior	:	:	:	:
fiscal year appro-	:	:	:	:
priation for cur-	:	:	:	:
rent program and	:	:	:	:
amount used for	:	:	:	:
such purchases from:	:	:	:	:
current fiscal year:	+1,548,775:	- -	-\$19,800,000	-19,800,000
Received by loan	:	:	:	:
from CCC	-36,500,000:	-39,000,000:	+19,000,000	-20,000,000
Repayment of loan	:	:	:	:
from CCC	+13,950,000:	+1,000,000:	+23,800,000	+24,800,000
Available for repay-	:	:	:	:
ment of loan from	:	:	:	:
CCC	+8,562,211:	- -	- -	- -
Appropriation or	:	:	:	:
estimate	227,500,000:	212,000,000:	+23,000,000(1):	235,000,000

INCREASE

(1) An increase of \$23,000,000 on a direct appropriation basis. The appropriation request for fiscal year 1958 was reduced from \$250,000,000 to \$212,000,000 or a reduction of \$38,000,000 due to the availability of underearnings in this amount on the 1955 program. An increase of \$38,000,000 would normally be required in the 1959 appropriation in order to carry out a 1958 Agricultural Conservation Program of \$250,000,000 as authorized by the Congress. However, due primarily to underearnings on the 1956 program only an increase of \$23,000,000 is required to carry out the program as authorized. The underearnings will be used to repay part of the 1958 loan from the Commodity Credit Corporation, thereby reducing the amount to be repaid from the 1959 appropriation.

Advance Authorization for 1959 Agricultural Conservation Program

The Budget proposes an advance authorization of \$125 million for cost-sharing payments to farmers who carry out approved soil and water conservation measures on their farms during the 1959 crop year. This reduction of \$125,000,000 below the present level of \$250,000,000 is proposed because of the general necessity to allocate expenditures only to the most essential needs so as to permit major effort in the national defense areas. We believe that by careful administration the lower authorization will be sufficient to give attention to the more essential needs for conserving agricultural resources. It is contemplated that the Department's total conservation effort will continue to be maintained at a substantial level.

The 1959 Agricultural Conservation Program will give particular attention to those conservation measures which are of major importance to farmers in making a transition from cropland to grass or trees. Also, the program will give attention to the problem of continuing in protective cover land which otherwise might be shifted to a more intensive use.

Adjustments will be made nationally to direct the program away from practices contributing most to immediate increases in agricultural production. This step is consistent with other programs intended to curtail production. The program will be operated at the local level on the basis of achieving the most needed conservation which, in the judgment of local people, can be obtained under the circumstances that exist on their individual farms and ranches in 1959. While the program generally will be directed to practices with longer lasting benefits and which are not frequently repeated as a necessary part of farming, the policy will be to provide a program of sufficient scope and flexibility to deal with acute local problems. These conservation problems vary as to kind and intensity not only State by State but even as between counties within a State.

The reduced program fund will be distributed among the States on the basis of the same conservation needs formula as used in past programs. Therefore, the reduction in program level would be approximately the same in all States.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- For necessary expenses to carry into effect the program authorized in sections 7 to 15, 16 (a), and 17 of the Soil Conservation and Domestic Allotment Act, approved February 29, 1936, as amended
- 1 (16 U.S.C. 590g-590(o), 590p [(a)-] (a), and 590q, * * *

- Provided further, That such amounts shall be available for administrative expenses in connection with the formulation and administration of the [1958] 1959 program of soil-building and soil- and water-conserving practices, under the Act of February 29, 1936,
- 2 as amended (amounting to [\$250,000,000] \$125,000,000, including administration, and no participant shall receive more than \$2,500, except where the participants from two or more farms or ranches join to carry out approved practices designed to conserve or improve the agricultural resources of the community * * *

Other than the usual changes in year dates applicable to the program covered by the appropriation and the period of availability thereof, the estimates include proposed changes in the language of the item as follows:

The first change corrects the U. S. Code citation by eliminating reference to 16 U.S.C. 590p(b), which pertains to the Great Plains Conservation program.

The second change would provide an authorization of \$125 million for the 1959 program. An explanation concerning the 1959 program follows the project statement in these justifications.

Background

Conservation of agricultural soil and water resources is recognized as essential to the present and future well-being of the Nation. Not only is it essential to assure a continued supply of food, fiber, and shelter for an increasing population, but also to supply the greater part of the raw materials that go into the expanding economy of the Nation. Farms and forests supply annually over 70 percent of all raw materials used in the economy of the country. Transporting, processing, financing, and handling these raw materials to make them useful and supply them where they are needed make up a large part of all the business and commerce that furnishes the livelihood for the Nation's nonfarm population. Because of their interest in food, fiber, and shelter and a continued healthy economy, nonfarm people have perhaps an even greater interest in conservation of soil and water resources than farmers themselves.

Farm practices that conserve agricultural soil and water resources are costly. They require an initial outlay of capital to install and many of them result in a reduction in farm income and an increase in the amount of expenditures for farm operations. The economic phase of conservation work has recently been receiving increased attention. Recent studies have revealed some of the reasons why farmers are often reluctant to adopt conservation systems of farming, even though it is recognized that such a system will eventually result in increased farm income. For example:

A study in Western Iowa indicated that the minimum time for a soil conservation plan to provide a higher annual income is 4 years, assuming a steady price situation. Once embarked on putting such a plan into effect, the farmer must be prepared to meet his highest capital outlay in the period of 5 to 8 years after it is started.

A study in Central Indiana indicated that an additional capital requirement of from \$10,000 to \$14,000 is required to put a conservation system of farming into effect. The net increase in farm income for the system was found to be \$2,400 per year but there was a period of 2 or more years when there was a decrease in net farm income.

Other similar studies point out this loss of immediate income, the cost of conservation practices and need for additional operating capital to carry on conservation work. They also show that returns which can be expected from some types of needed conservation measures (for example terrace systems, erosion control structures and certain forestry improvement measures) will not equal their cost in the foreseeable future, although they may be necessary to prevent irreparable loss of soil resources. It is shown that there are greater risks in some types of needed work (such as contour farming or the establishment of soil saving cover in some areas) that farmers and lenders resist assuming.

It is with this background of cost and returns from conservation and the public's dependence upon the conservation of soil and water resources that Federal cost-sharing of conservation practices on individual farms is offered. Research and experimental work have developed and are developing means by which soil and water resources can be conserved. Educational work is teaching the value of and need for conservation effort. Technical services help determine the conservation measures that are needed and furnish engineering and other professional assistance to correctly install them. Federal cost-sharing by the Agricultural Conservation Program helps overcome the economic barriers to carrying out conservation measures. The basic purpose of the Agricultural Conservation Program is to afford a means by which all the people may bear a part of the costs of those measures that would not otherwise be carried out at the rate needed to meet the public interest. It assists farmers to protect the public's interest in the Nation's soil and water resources by sharing with individual farmers and ranchers the cost of carrying out soil-building and soil-and water-conserving practices more rapidly and to a fuller extent than would be practicable through usual farm management practices. The program helps insure continued abundant production for all of the people of the country.

Program Development

Development of the Agricultural Conservation Program begins at the local or county level. The Agricultural Stabilization and Conservation county committee, with the assistance of the County Extension Agent and representatives of the Soil Conservation Service, Forest Service, and other local agencies interested in conservation, make recommendations to the Agricultural Stabilization and Conservation State committee. These are summarized by the State committee and used as the basis to formulate joint recommendations of the agencies interested in conservation to the Agricultural Conservation Program Service in Washington.

From these recommendations, the Agricultural Conservation Program Service, the Federal Extension Service, Soil Conservation Service, and Forest Service develop and recommend to the Secretary a national program. State and county committees then develop their programs within the structure of the national program authorized by the Congress and approved by the Secretary.

Program Administration

The Agricultural Conservation Program is administered locally by Agricultural Stabilization and Conservation county committees which are composed of resident farmers elected by farmers they serve. County committees are supervised by Agricultural Stabilization and Conservation State committees composed of resident farmers appointed by the Secretary of Agriculture. The local County Agent is ex officio a member of the county committee and the State Director of Extension holds a like position on the State committee.

State, county and community committeemen are assigned the responsibility for the field administration of the program and work directly with farmers in utilizing program assistance in an effort to get the greatest volume of conservation performed on the land by the farmers themselves. The responsibility for technical determinations in the field regarding designated permanent type practices is assigned to the Soil Conservation Service, except for forestry practices, for which responsibility is assigned to the Forest Service.

The Program for 1957

The Department carried out the 1957 Agricultural Conservation Program consistent with the authorization contained in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1957. The Department continued the policy of directing program emphasis toward but not limiting assistance to, enduring practices which are essential in the public interest and which farmers or ranchers would not carry out to the desired extent with their own resources, and to practices needed to meet the conservation problems on land being shifted out of production.

States were authorized to operate the 1957 Program concurrently with the 1956 Program in the fall of 1956. Under concurrent programs, State programs for two different years are in operation during the overlapping period of time authorized by the Congress and during which practices performed are eligible for cost-sharing under either program but not both programs.

The Program for 1958

The 1958 Agricultural Conservation Program of \$250 million has been developed and is being carried out substantially the same as the program for 1957.

Changes for 1958 have been limited to those which, on the basis of 1957 experience, were necessary to obtain more efficient operation or to apply 1957 program principles more effectively. These changes were primarily directed to prevent cost-sharing from being used to bring new land into production when agricultural production is at an all-time high and in excess of present needs.

Authority for local development and adaptation of the program continues. There is also encouragement for modifications of regular practices to meet local problems. In addition, there is continued the provision for the development of new practices to meet new or unusual conservation problems.

The maximum Federal cost-share limitation has been increased from \$1,500 to \$2,500 as directed by the Congress.

States have been instructed to obtain from counties such periodic reports as are necessary to keep currently advised of the progress of the program in each county and to adjust funds among counties when necessary in order to get a maximum of conservation accomplishment, and to operate concurrent programs to provide the maximum flexibility essential to the best utilization of available funds.

The continuation of substantially the same program in 1958 as in 1957 enabled States and counties to progress from one program year to the next without interruption. It also increased program understanding among county office personnel and farmers and helped get the 1958 program into operation with a minimum of delay.

Funds available for program assistance are distributed among States in accordance with their conservation needs, except for the minimum allotment provision contained in both Section 15 of the Soil Conservation and Domestic Allotment Act, as amended, and the 1958 appropriation act. Funds for the Naval Stores Conservation Program, cost of aerial photography, program printing, and transfers to the Treasury Department are subtracted before the conservation needs formula is applied. The amount for Naval Stores has been determined in the same manner since 1948 and is based on the need for assistance under the Naval Stores Conservation Program as related to the total funds available for cost-sharing assistance to farmers.

Program Data

Participation under the 1956 Agricultural Conservation Program

Item	Unit	Total a/	Partici- pating a/	Portion partici- pating
Farms	Number	5,267,383	1,210,347	23
Farm land	1,000 acres	1,223,352	442,743	36
Cropland	1,000 acres	477,456	184,647	39
Noncrop pasture and range	1,000 acres	551,412	193,597	35

a/ Includes United States, Alaska, Hawaii, Puerto Rico and Virgin Islands; excludes Naval Stores Conservation Program; includes 1956 Emergency Wind Erosion Control Program, and Emergency Flood Program.

Extent of Selected Conservation Measures Performed Under the
1956 Agricultural Conservation Program and Accomplishments
Under the Agricultural Conservation Programs -- 1936-1956
(Preliminary - Includes emergency practices)

Practice	:	Unit	:	Extent Under:	:	Total
	:		:	1956 Program:	:	Accomplishments
	:		:	a/	:	1936-1956 a/
Dams and reservoirs b/.....	:	Number	:	76,925	:	1.4 mil. structures
Drainage c/.....	:	Acre	:	1,335,855	:	34.2 mil. acres
Leveling land to conserve irrigation	:		:		:	
water and prevent erosion.....	:	Acre	:	403,757	:	5.8 mil. acres
Standard terraces.....	:	Acre	:	926,050	:	22.2 " "
Diversion and spreader terraces	:	Mile	:	5,107	:	107.3 thou. mi.
Establishing contour stripcropping.....	:	Acre	:	270,570	:	5.1 mil. acres
Stripcropping not on the contour.....	:	Acre	:	940,204	:	103.4 " "
Control of competitive shrubs on	:		:		:	
range or pasture.....	:	Acre	:	1,552,255	:	35.6 " "
Tree planting.....	:	Acre	:	195,348	:	1.7 " "
Liming materials applied for	:		:		:	
conserving purposes.....	:	Ton	:	16,522,673	:	358.6 mil. tons
Permanent sod waterways.....	:	Acre	:	45,170	:	500.0 thou. acres
All vegetative cover.....	:	Acre	:	14,636,227	:	725.1 mil. acres

a/ Includes completed measures only.

b/ Includes storage-type structures for erosion control, livestock water, and irrigation (new structures only).

c/ Includes open and enclosed type drainages and shaping and leveling.

Information on the 1957 program participation not yet available.

EMERGENCY CONSERVATION MEASURES

Purpose Statement

The objective of this program is to restore to normal agricultural use farm lands which have been damaged by natural disasters. Cost-sharing assistance, up to 80 percent of the cost of carrying out approved practices, is offered to assist and encourage farmers to carry out such practices. Assistance is given only when, as a result of wind erosion, hurricanes, floods, or other natural disasters, new conservation problems are created which:

1. If not treated will impair or endanger the land.
2. Materially affect the productive capacity of the land.
3. Represent damage which is unusual in character and, except for wind erosion, is not the type which would recur frequently in the same area.
4. Will be so costly to rehabilitate that Federal assistance is or will be required to return the land to productive agricultural use.

	<u>Appropriated, 1958</u>	<u>Budget Estimate, 1959</u>
Appropriation	\$20,000,000	- -

(b) Emergency Conservation Measures

Supplemental Appropriation Act, 1958, and base for 1959	\$20,000,000
Budget Estimate, 1959	- -
Decrease (due to elimination of non-recurring item)	<u>-20,000,000</u>

PROJECT STATEMENT

Project	1957	1958 (estimated)	1959 (estimated)
Emergency cost-sharing assistance to farmers and ranchers	\$930,800	\$7,000,000	- -
Unobligated balance brought forward ..	- -	-3,069,200	- -
Unobligated balance carried forward ..	3,069,200	- -	- -
Estimated unobligated balance	- -	16,069,200	- -
Total appropriation or estimate	4,000,000	20,000,000	- -

CHANGE IN LANGUAGE

The estimates propose deletion of the following language:

[For an additional amount for "Emergency Conservation Measures", to be used for the same purposes and subject to the same conditions as the funds appropriated under this head in the Third Supplemental Appropriation Act, 1957, \$20,000,000.]

The proposed change eliminates non-recurring language which was included in the Supplemental Appropriation Act, 1958, approved August 28, 1957, providing funds to carry out a program of emergency cost-sharing assistance in areas where new conservation problems have been created as a result of natural disasters.

STATUS OF PROGRAM

During the past several years natural disasters have occurred in various areas of the United States and in Puerto Rico which have resulted in such severe damage to farm lands as to warrant Federal assistance to farmers to return the land to productive agricultural use. The regular Agricultural Conservation Program was adjusted in emergency areas to provide as much conservation land treatment assistance as possible without unduly disrupting the accomplishments of the longer-range Agricultural Conservation Program and particularly where it was possible to divert funds which would not be otherwise utilized. However, because of the widespread conditions and intense degree of damage, cost-sharing was required in addition to that provided under the regular program for emergency measures to rehabilitate damaged farm lands. Since 1954 such assistance has been provided as follows:

1. In the Great Plains States where severe wind and drought conditions prevailing in 1954 and 1955 continued in 1956.
2. In the Eastern Seaboard States and Puerto Rico where hurricanes caused floods and other substantial damage to farm lands.
3. In California, Nevada, and Oregon where torrential rains during the winter of 1955-1956 caused disastrous floods resulting in serious erosion and deposits of silt, sand, gravel, and other debris.

Public Law 85-58 provided \$4 million and Public Law 85-170 provided additional \$20 million for emergency conservation work for the same purposes and subject to the same conditions as funds provided by Public Law 85-58.

Public Law 85-58, approved June 21, 1957, sets forth conditions under which emergency funds may be used to treat new conservation problems created by natural disasters. The problems must be such that: (1) if not treated, they will impair or endanger the land, (2) they materially affect the land's productive capacity, (3) they represent damage which is unusual in character and, except for wind erosion, is not the type which would recur frequently in the same area, and (4) they will be so costly to rehabilitate that Federal assistance is or will be required to return the land to productive agricultural use.

Requests for assistance must originate with County Disaster Committees. Such requests are considered by the State Disaster Committee and the State Committee's recommendations are forwarded to the Department.

Designation of eligible areas and allocation of emergency funds are made by the Secretary of Agriculture on the basis of the recommendations submitted through State and county Disaster Committees and other available information.

Funds have been allocated for cost-sharing assistance as follows:

<u>State</u>	<u>Allocation*</u>	<u>Number of counties designated*</u>
Arkansas	\$ 290,000	19
Indiana	123,000	12
Kansas	28,000	2
Kentucky	185,000	31
Louisiana	60,000	7
Minnesota	196,500	9
Missouri	400,000	21
Oklahoma	390,000	21
Oregon	400,000	2
Texas	<u>75,000</u>	<u>3</u>
Total	<u>2,147,500</u>	<u>127</u>

* As of December 30, 1957

Emergency assistance has been authorized for the following types of work needed to solve new soil and water conservation problems created on farm lands as a result of natural disasters. Such work includes practices to:

1. Rehabilitate farm lands which, as a result of flood waters, have suffered major damage such as deep gullying; heavy deposits of sand, gravel, or other debris; severe scouring by flood water; stream bank erosion; formation of pot holes; breaking of or other damage to dams, dikes, and ditches.
2. Rehabilitate existing drainage or irrigation systems damaged by flood waters by removing heavy deposits of silt or other material essential to restoring the system to an operating condition where farm lands served by the system could not otherwise be put to its normal agricultural use.
3. Remove water from land having a serious drainage problem as a result of flood which must be solved to restore the land to its normal agricultural use by installing new drains.
4. Restore terraces, farm ponds and erosion control structures damaged by excessive rains or runoff.
5. Rehabilitate land damaged by freeze by removing damaged trees and reestablishing a protective cover to prevent erosion.

STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts which, by November 30, 1957, were actually received or programmed for 1958 or 1959. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	: : Obligations, : 1957	: Estimated : Obligations, : 1958	: Estimated : Obligations, : 1959
Allotments from:	:	:	:
Soil Bank Programs, Agriculture:	:	:	:
Conservation Reserve Program	: \$25,237	: \$39,000	: \$39,000
Soil Conservation Service:	:	:	:
Great Plains Conservation Program	: - -	: 25,000	: 25,000
Total, Allotments	: 25,237	: 64,000	: 64,000
Obligations Under Reimbursements from	:	:	:
Governmental and Other Sources:	:	:	:
Agricultural Conservation Program:	:	:	:
For sale of aerial photographs	: 457,000	: 444,000	: 444,000
TOTAL OBLIGATIONS UNDER ALLOTMENTS	:	:	:
AND OTHER FUNDS	: 482,237	: 503,000	: 508,000



